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1966-6

J. D. Drinan
Editor

**Haystack Pointing System:
Auxiliary Real-Time Programs**

31 January 1966

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MASSACHUSETTS INSTITUTE OF TECHNOLOGY
LINCOLN LABORATORY

HAYSTACK POINTING SYSTEM:
AUXILIARY REAL-TIME PROGRAMS

J. D. DRINAN, Editor

Group 62

TECHNICAL NOTE 1966-6

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ABSTRACT

A description is given of ten non-major subprograms in the Haystack Pointing System. These programs all operate in the real-time environment, but in a sense are embellishments to the system proper inasmuch as they are by design either utilitarian to system operation or perform minor system functions. The additional system capabilities provided by this set of subprograms include: alteration of memory locations; modification of certain system parameters; constant monitoring of selectable memory locations; pointing of the antenna to any azimuth and elevation or right ascension and declination; outputting of certain planning information "on-line"; strip chart recording; magnetic tape recording; high-speed printer interfacing and Westford/Millstone intersite coupling.

Accepted for the Air Force
Franklin C. Hudson
Chief, Lincoln Laboratory Office

HAYSTACK POINTING SYSTEM: AUXILIARY REAL-TIME PROGRAMS

INTRODUCTION

The ten programs described in this document play important but non-major roles in the operation of the Haystack Pointing System. They all function in "on-line" operation of the system as distinguished from another set of minor programs which operate peripherally to the system.

A brief abstract of each program is given in alphabetical order along with the name of each author.

The listings for the individual programs are found in a separate section at the end of this memo.

CHANGE CORE	S. J. White	Page 3
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The contents of any memory location can be changed as the system operates. Typeout of the specified location, old and new contents is given.

CHANGE PARAMETER	A. A. Mathiasen	Page 5
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Certain selected system parameters can be changed by typing in the symbolic parameter name and the new value.

DYNAMIC DUMP	S. J. White	Page 8
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The contents of one to eight selected memory locations, along with the name of the system program that has just operated, can be examined on the high-speed printer after the operation of each system program.

FIXED AZIMUTH-ELEVATION	A. A. Mathiasen	Page 18
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The system can be directed to point at any desired azimuth or elevation.

FIXED RIGHT ASCENSION-DECLINATION	A. A. Mathiasen	Page 20
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The system can be directed to a point in space having any right ascension, declination and radius. The rates of change of any of these quantities can be varied.

PLANNING	J. D. Drinan	Page 22
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In the simulation mode, if jump key 2 is on, rise times and set times of the object under surveillance are logged on the high-speed printer.

PLOT R. Teoste Page 25

Command azimuth and elevation angles and their differences from actual antenna angles along with time marks are plotted on the channel 5 strip chart recorder. Adjustment and calibration facilities are provided.

PRLOG S. J. White Page 29

Messages to be output on the high-speed printer are accepted from any system program. Priority indication and page spacing facilities are provided.

RECORDING J. D. Drinan Page 38
A. A. Mathiasen

A central facility is provided for handling all of the magnetic tape recording as requested by any of the system programs.

WFORD/MSTONE INTERSITE COUPLING J. D. Drinan Page 50

As the Haystack Pointing System cycles, pointing information in the form of azimuth, elevation, range, and doppler data is automatically output to both the West Ford and Millstone sites.

CHANGE CORE

INTRODUCTION

The Change Core Program (CHCOR) permits changing the contents of any core location in the Haystack Pointing System while it is in operation.

INPUT

Location address and new contents are entered via the console typewriter.

OUTPUT

The specified address, old contents and new contents will be typed out on the console typewriter and the desired core change made.

OPERATION

CHCOR is called to operate via the "attention" symbol route. The user, in response to the message "E. L. + C. " (enter location and contents) typed out on the console typewriter, types in an octal address followed by a carriage return.* This address is the location whose contents are to be changed. Next, the user types in the new contents in octal, again followed by a carriage return. (Leading zeros need not be typed.)

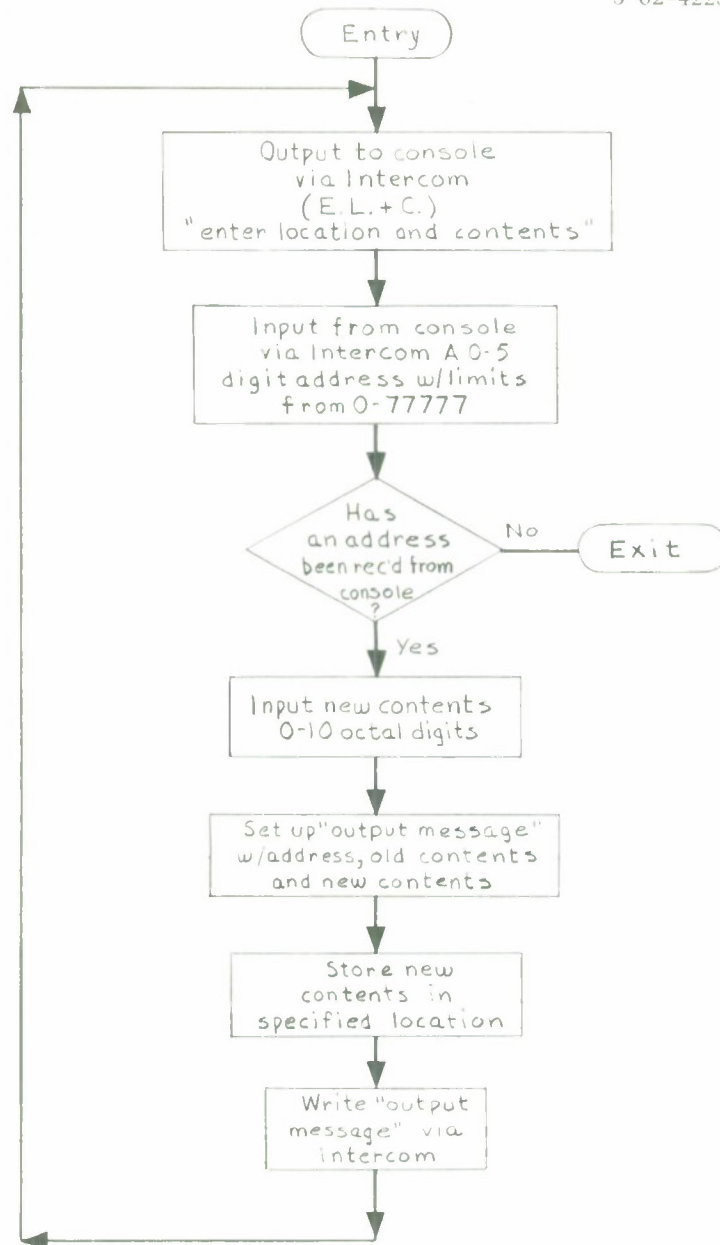
Typeouts of the specified address, old contents and new contents will then be provided on the console typewriter.

The program will continue to cycle until the answer to a request for an input is a carriage return alone.

Example: (Console Listing)

```
E. L. + C.  
      76543*  
      7777654321*  
76543  1234567777  7777654321  
E. L. + C.  
      16345*  
      10*  
16345  1035061111  0000000010  
E. L. + C.  
      *
```

*Note: The console output for a carriage return is the asterisk.



CHANGE CORE PROGRAM

CHANGE PARAMETER

INTRODUCTION

The parameter program enables an experimenter to change certain selected constants in the Haystack Pointing System easily by typing in the name of the parameter and its value. This should be done immediately after bootstrap or before starting a new experiment. The new parameters are valid only until the pointing system is read in anew by the bootstrap procedure, at which time the values compiled into the system are used. If a permanent change is desired, the new value must be compiled into the program which sets up the Common Storage register.*

The setting in of numbers like site latitude, longitude, height, the frequencies of Haystack and Westford or the equatorial and polar radii of the earth are straightforward.

The register DELTATEE contains the difference in days between ephemeris time and universal time and is found in the table " ΔT , Reduction from Universal Time to Ephemeris Time" in the beginning of the American Ephemeris and Nautical Almanac, and should be set if accurate output is desired for other than the current year. For the current year, the correct value should be compiled into the program that sets up this register.*

The register AZIMOVER which has the azimuth overlap indicator[†] should be set to the proper value to ensure a complete run on the object to be tracked without running into the cable wrap limits. A positive value (such as +0) starts the antenna in the non overlap region ($0^{\circ} \leq \text{Azimuth} \leq 360^{\circ}$). A negative value (which may be entered as -0) starts the antenna in the overlap region ($-120^{\circ} \leq \text{Azimuth} \leq 0$ or $360^{\circ} \leq \text{Azimuth} \leq 480^{\circ}$). The azimuth overlap indicator is set to +0 upon bootstrapping in the system, but subsequently is not changed by any program (except CHANGE PARAMETER). Thus if in a run the antenna moves from the non-overlap region to an overlap region, AZIMOVER is not changed so that a new

* See "Haystack Pointing System: Control Program" by J. D. Drinan and A. A. Mathiasen (in preparation).

† See "Haystack Pointing System: Acquisition" by R. Teoste (in preparation).

run would unwind the antenna into the non-overlap region unless AZIMOVER is now set negative.

OPERATION

Upon initialization by way of the attention symbol and the appropriate options, the parameter program types the following:

CHANGE PARAMETERS

NAME OF PARAMETER, CARRIAGE RETURN, NEW VALUE, CARRIAGE RETURN.

WHEN FINISHED CHANGING PARAMETERS, PRESS CARRIAGE RETURN AN EXTRA TIME.

The experimenter then types the parameter name followed by a carriage return, and the new value, followed by a carriage return. When he has no more new values, he types simply carriage return. Thus, a typical sequence might be the following (where * indicates a typed carriage return):

GEODETLAT*

45.0*

LONGITUDE*

233.0*

*

When the sequence is ended, the parameter program returns to the Master Control Program in its initialization section but after common storage set up.

CHANGEABLE PARAMETERS

The Common Storage registers which may be changed are given in the following table:

Name	Contents	Scaling	Lower and Upper Limit
DELTATEE	Ephemeris Time - Universal Time	Days B28	-.00005 +.001
FREQUENCY	Haystack Radar Frequency	Megacycles B14	0 10,000
WFFREQ	Westford Frequency	Megacycles B14	0 10,000
LONGITUDE	Haystack Longitude	Degrees B20 + is east	-360 +360
GEODETLAT	Haystack Geodetic Latitude	Degrees B20 + is north	-90 +90
HEIGHT	Haystack Height	Feet B0	-300 30,000
EQUATOR	Equatorial Radius	Nautical Miles B17	3,000 4,000
POLE	Polar Radius	Nautical Miles B17	3,000 4,000
AZIMOVER	Azimuth Overlap Indicator	Octal + = non-overlap - = overlap	None

Other parameters may be easily incorporated into the program. The format of an addition to the table follows:

Word 1 FD · 2 · Name of parameter
Word 3 FD · 1 · Scaling
Word 4 XX · Name of parameter
Word 5 Lower Limit
Word 6 Upper Limit

The scaling is explained in a separate memo on Intercom. XX is the setting of the carriage and the limit checking as explained in the same memo. Words 3 to 5 make up part of the calling sequence to Intercom.

DYNAMIC DUMP

INTRODUCTION

The purpose of the Dynamic Dump Program (DYDMP) is to print dynamically the contents of one to eight core locations on the high-speed printer, as the pointing system cycles. The contents of the core locations selected, and the name of the system program that has just operated, are printed after the operation of each system program. DYDMP uses the Printer Logging Program (PRLOG) for output to the high-speed printer(HSP).

INITIALIZATION

One must first gain entrance to the initialization section of DYDMP. This is accomplished by depressing the attention symbol while the Haystack pointing system is in operation. Proper selection of the coded figures, as in Appendix A, produces a typeout from DYDMP of:

ENTER LOCATION

In answer to this typeout, type an octal number of one to five digits such as:

63141

followed by a carriage return.

Once again the typeout

ENTER LOCATION

is produced. This will continue for a total of 8 entries, or until a carriage return alone is given in response to an output. (See Appendix A)

OUTPUT

When the user has signaled (carriage return alone) that he is finished specifying locations to be dumped or has specified the maximum of eight locations, DYDMP prints a heading line on the HSP and exits to Master Control Program (MCP). Thereafter, each time it is entered in the working section, DYDMP will print one line containing the name of the system program that has just operated as well as the contents of the specified locations at that time. (See Appendix B.) Since

MCP calls DYDMP (when activated) after each system program output will occur at these times. Output of the contents of the selected locations will continue until the user reinitializes DYDMP.

REINITIALIZATION

Entering the initialization section of DYDMP for the second time via the attention symbol route, as in Appendix C, effects the typeout:

STOP (Y-N)

i. e. , should the operation of DYDMP be stopped, yes (Y) or no (N)?

Answering N causes an additional typeout to appear on the console.

Change O/P (0-7)

i. e. , which of the 8 columns of output 0-7, should the address be changed?

Typing

4

would mean that in the fifth column, the address of the contents, now being printed, is to be changed. The program then types:

ENTER LOCATION

Now the new address replacing the one in the fifth column is entered. Again this continues for a total of 8 entries or until a carriage return alone is given in answer to an output. Henceforth, as shown in Appendix D, the contents of the addresses that have been changed will be printed out along with the ones unchanged.

To stop the operation of DYDMP, one merely answers Y to the initial question above.

APPENDIX A

SIGN OFF (1) MOD (2) NEXT RUN (3) PRINT (4)

2*

MOON (1) SCAN (2) RECORDING (3) RADIOMETER (4) TIMING (5) OTHER (6)

6*

RA -DEC DISPLAY (1) CORRECTION (2) PARAMETERS (3) ACQUISITION (4)

CC (5) DYDMP (6)

6*

ENTER LOCATION

63141*

ENTER LOCATION

12345*

ENTER LOCATION

123*

ENTER LOCATION

5*

ENTER LOCATION

54321*

ENTER LOCATION

321*

ENTER LOCATION

1*

ENTER LOCATION

22222*

APPENDIX C

SIGN OFF (1) MOD (2) NEXT RUN (3) PRINT (4)

2*

MOON (1) SCAN (2) RECORDING (3) RADIOMETER (4) TIMING (5) OTHER (6)

6*

RA-DEC DISPLAY (1) CORRECTION (2) PARAMETERS (3) ACQUISITION (4)
CC (5) DYDMP (6)

6*

STOP (Y-N)

N*

CHANGE O/P (0-7)

4*

ENTER LOCATION

10*

CHANGE O/P (0-7)

7*

ENTER LOCATION

33333*

CHANGE O/P (0-7)

*

0

SIGN OFF (1) MOD (2) NEXT RUN (3) PRINT (4)

2*

MOON (1) SCAN (2) RECORDING (3) RADIOMETER (4) TIMING (5) OTHER (6)

6*

RA-DEC DISPLAY (1) CORRECTION (2) PARAMETERS (3) ACQUISITION (4)
CC (5) DYDMP (6)

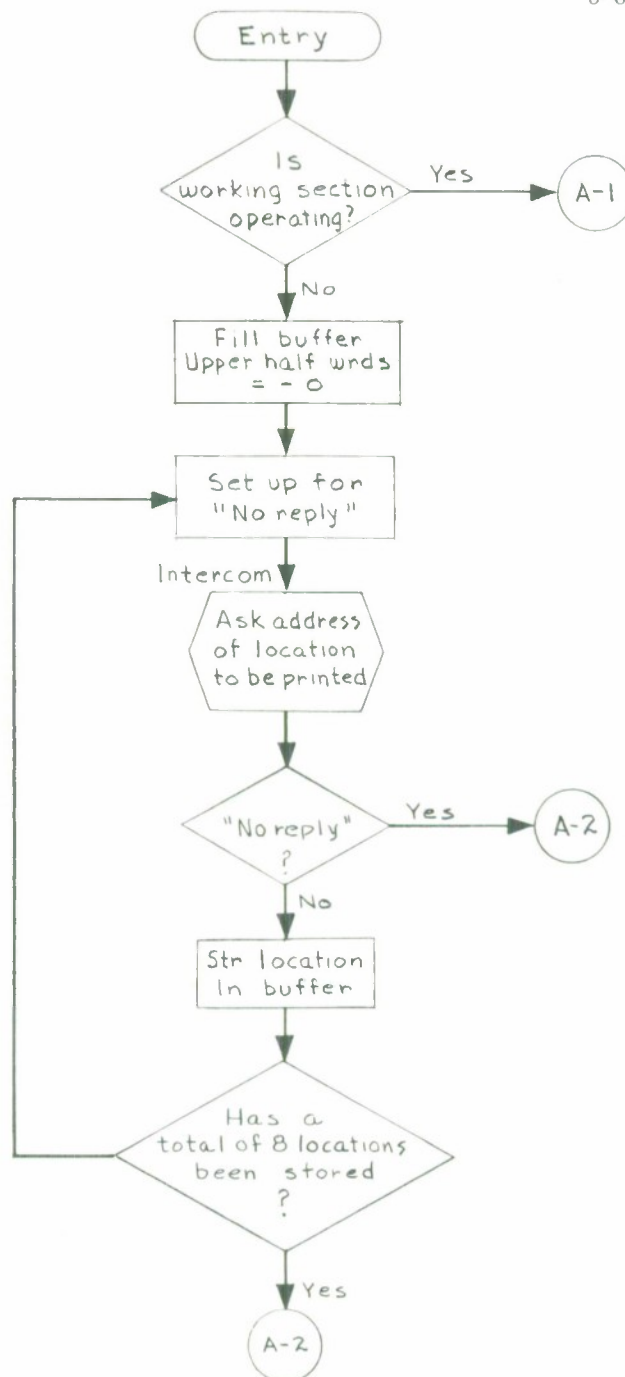
6*

STOP (Y-N)

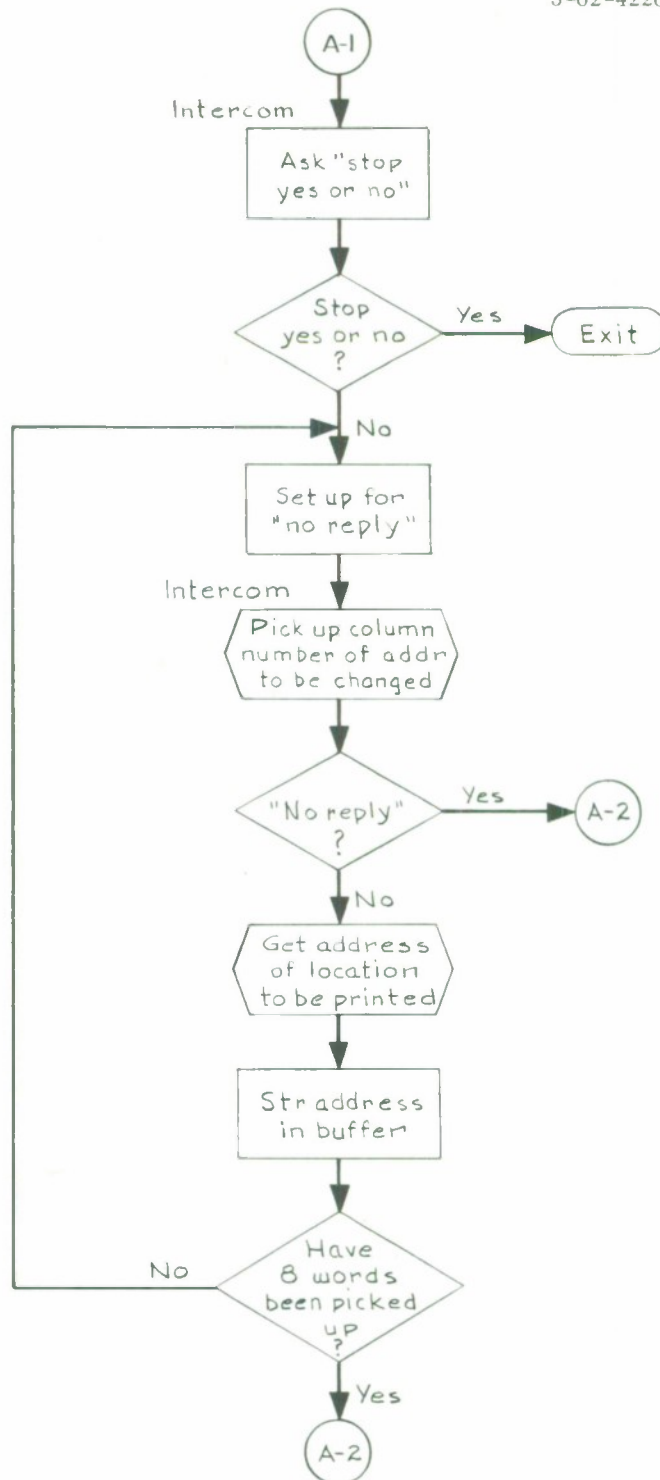
Y*

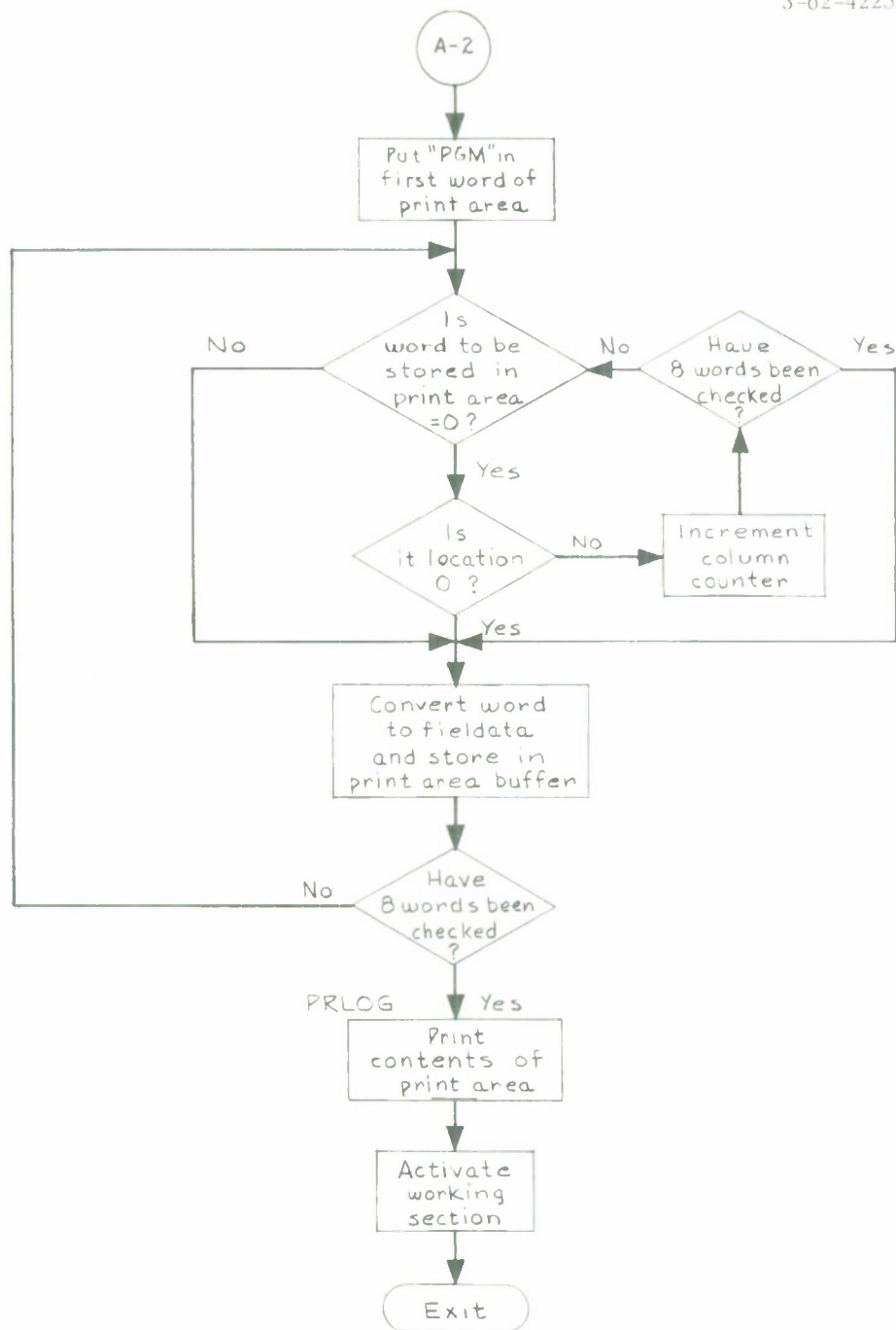
FORM NO. 1411 & • © PRINTED IN U. S. A.

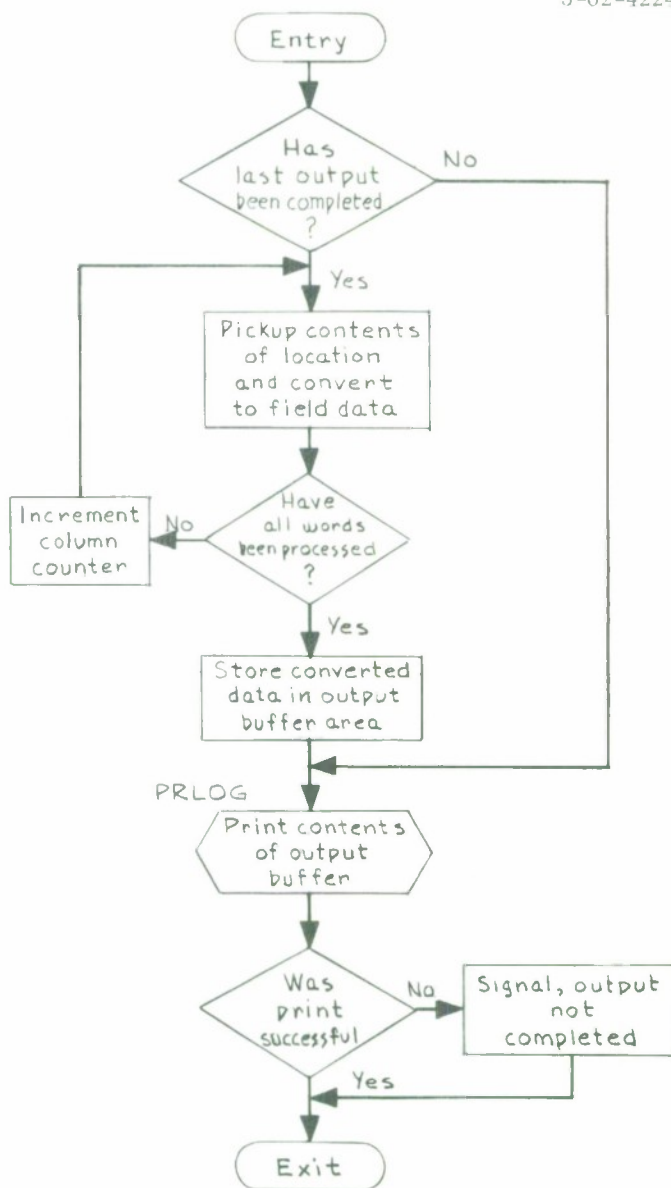
PEM	631451	12345	00123	00005	00010	00321	00001	33333
RADEC	00001 67051	11037 00001	26676 26677	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
HOONP	00001 67051	11037 00001	26730 26731	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
ADSCN	00001 67051	11037 00001	26730 26731	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
COCON	00001 67051	11037 00001	26730 26731	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
AESCN	00001 67051	11037 00001	26730 26731	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
CORCT	00001 67051	11037 00001	26730 26731	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
ACQUI	00001 67051	11037 00001	26730 26731	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
INTER	00001 67051	11037 00001	27014 27015	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
WFOED	00001 67051	11037 00001	27014 27015	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
RECRO	00001 67051	11037 00001	27014 27015	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
RADEC	00001 67053	11037 00001	27342 27343	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
HOONP	00001 67053	11037 00001	27334 27335	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
COCON	00001 67053	11037 00001	27334 27335	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
AESCN	00001 67053	11037 00001	27334 27335	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
CORCT	00001 67053	11037 00001	27334 27335	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
ACQUI	00001 67053	11037 00001	27334 27335	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
INTER	00001 67053	11037 00001	27420 27421	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
WFOED	00001 67053	11037 00001	27420 27421	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
RECRO	00001 67053	11037 00001	27420 27421	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
RADEC	00001 67055	11037 00001	27430 27431	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
HOONP	00001 67055	11037 00001	27430 27431	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
COCON	00001 67055	11037 00001	27430 27431	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
AESCN	00001 67055	11037 00001	27430 27431	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
CORCT	00001 67055	11037 00001	27430 27431	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
ACQUI	00001 67055	11037 00001	27430 27431	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
INTER	00001 67055	11037 00001	27502 27503	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
WFOED	00001 67055	11037 00001	27502 27503	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
RECRO	00001 67055	11037 00001	27502 27503	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
RADEC	00001 67057	11037 00001	27534 27535	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
HOONP	00001 67057	11037 00001	27534 27535	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
COCON	00001 67057	11037 00001	27534 27535	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
AESCN	00001 67057	11037 00001	27534 27535	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
CORCT	00001 67057	11037 00001	27534 27535	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
ACQUI	00001 67057	11037 00001	27534 27535	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
INTER	00001 67057	11037 00001	27430 27431	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
WFOED	00001 67057	11037 00001	27430 27431	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
RECRO	00001 67057	11037 00001	27430 27431	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
RADEC	00001 67061	11037 00001	26676 26677	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
HOONP	00001 67061	11037 00001	26730 26731	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
ADSCN	00001 67061	11037 00001	26730 26731	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
COCON	00001 67061	11037 00001	26730 26731	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
AESCN	00001 67061	11037 00001	26730 26731	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
CORCT	00001 67061	11037 00001	26730 26731	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
ACQUI	00001 67061	11037 00001	26730 26731	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
INTER	00001 67061	11037 00001	27014 27015	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
WFOED	00001 67061	11037 00001	27014 27015	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
RECRO	00001 67061	11037 00001	27014 27015	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
RADEC	00001 67065	11037 00001	27342 27343	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
HOONP	00001 67065	11037 00001	26676 26677	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
ADSCN	00001 67065	11037 00001	26730 26731	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
COCON	00001 67065	11037 00001	26730 26731	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
AESCN	00001 67065	11037 00001	26730 26731	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
CORCT	00001 67065	11037 00001	26730 26731	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
ACQUI	00001 67065	11037 00001	26730 26731	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
INTER	00001 67065	11037 00001	27014 27015	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
WFOED	00001 67065	11037 00001	27014 27015	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
RECRO	00001 67065	11037 00001	27014 27015	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
RADEC	00001 67067	11037 00001	27342 27343	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
HOONP	00001 67067	11037 00001	27334 27335	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
ADSCN	00001 67067	11037 00001	27334 27335	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
COCON	00001 67067	11037 00001	27334 27335	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
AESCN	00001 67067	11037 00001	27334 27335	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
CORCT	00001 67067	11037 00001	27334 27335	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
ACQUI	00001 67067	11037 00001	27334 27335	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642
INTER	00001 67067	11037 00001	27342 27343	61000 00003	12270 00000	60100 43663	10000 00115	65000 33642



DYNAMIC DUMP PROGRAM INITIALIZATION SECTION







DYNAMIC DUMP WORK SECTION

FIXED AZIMUTH-ELEVATION

INTRODUCTION

The fixed azimuth and elevation program provides a means for pointing the Haystack antenna at any azimuth or elevation.

OPERATION

Upon initialization, the fixed azimuth and elevation program allows input of a single azimuth and a single elevation. Following is a typical sequence of questions and answers:

AZIMUTH(DEGREES)

182.3*

ELEVATION (DEGREES)

47.61*

Upon reinitialization, i.e., when the antenna buffer chain is operating and the fixed azimuth elevation program is chosen via the Attention Symbol route, the program types out the following:

AZIMUTH (DEGREES) PREFIXING WITH A, OR

ELEVATION (DEGREES) PREFIXING WITH E.

A CARRIAGE RETURN IS NECESSARY AFTER PREFIXED LETTER.

The initialization section "keeps control" allowing rapid changing of azimuth or elevation. The experimenter may enter azimuth or elevation about as fast as he can type. Following is a possible sequence.

A*

179.3*

A*

171.65*

E*

47*

A*

152*

E*

48.1*

Until the attention symbol is again typed, the initialization section of fixed azimuth-elevation retains communications with the experimenter.

If a mistake in typing a prefix is made, the program types an error message. Thus,

B*

YOU HAVE TYPED ILLEGAL PREFIX. TRY AGAIN.

A*

157.6*

COMMON STORAGE SET

AZIMUTH

ELEVATION

FIXED RIGHT ASCENSION-DECLINATION

INTRODUCTION

The fixed right ascension-declination program provides a means for pointing the Haystack antenna at any desired right ascension or declination. The program also provides a means for entering radius, or the rates of change of any of these three quantities.

OPERATION

Upon initialization, the program requests via Intercom various inputs. A typical question and answer sequence might be the following:

RIGHT ASCENSION (DEGREES)

123. *

DECLINATION (DEGREES)

-21.4*

RADIUS (EARTH RADII)

52.35*

R. A. DOT (DEGREES/SEC)

-.0632*

DEC. DOT (DEGREES/SEC)

.001*

RADIUS DOT (NAUTICAL MILES/SEC)

-3.76*

When the program is reinitialized and the azimuth buffer chain is operating, the program types out the following:

RIGHT ASCENSION (DEGREES), PREFIXING WITH A,

DECLINATION (DEGREES), PREFIXING WITH D,

RADIUS (EARTH RADII), PREFIXING WITH R,

RADOT (DEGREES/SEC), PREFIXING WITH B,

DECDOT (DEGREES/SEC), PREFIXING WITH E, OR

RADIUSDOT (N. M. /SEC), PREFIXING WITH S.

A CARRIAGE RETURN IS NECESSARY AFTER PREFIXED LETTER.

A typical answer sequence might be

A*
37.6*
D*
-10.7*
R*
32.5*
A*
39*
S*
2.7*
B*
.06*

Until the attention symbol is typed the experimenter remains in communication with the fixed right ascension-declination program.

When the program is reinitialized upon the Pointing System's reaching the System Time Limit, the program does not ask for inputs, but keeps the values it had.

The working section of the program is merely a dummy program.

COMMON STORAGE SET

RADIUS
RA
DEC
RADIUSDOT
RADOT
DEC DOT

PLANNING

INTRODUCTION

The Haystack Pointing System Planning Program (PLAN) provides the user of the System with a means of conveniently determining the rise time and set time of the object under surveillance. However, two conditions must be met before PLAN will operate and provide this information. The first of these is that the Haystack Pointing System must be operating in the simulation mode and secondly jump key 2 must be turned on.

INPUT

PLAN uses Common Storage (C/S) Registers ELEV, FIRSTELEV, and CELTIME.

OUTPUT

PLAN uses the high-speed printer via the PRLOG subroutine to print out the rise and set information.

INITIALIZATION SECTION

PLAN is initialized only when the System is about to cycle in the simulation mode. When this occurs the contents of C/S ELEV, which now contains the most recently computed elevation, is transferred to C/S FIRSTELEV for later comparison in the operation section.

OPERATION SECTION

Once during each cycle of the System in the simulated mode, the operation section of PLAN is entered. This occurs after the System has computed the new elevation corresponding to the time in CELTIME.

Unless jump key 2 is on PLAN will make an immediate return to the control program. When the key is on, PLAN compares the most recently computed elevation in C/S ELEV with the elevation computed one System cycle earlier saved in C/S FIRSTELEV. If both elevations have the same sign, no change in visibility is assumed to have occurred. If on the other hand the elevation has gone from minus

plus from the previous frame to this, a change of visibility status from invisible to visible is understood.* The inverse, of course, is true. Thus, if a change of sign has occurred, the time of computation in C/S CELTIME is converted and one of the following messages is output via PRLOG:

ROSE AT 12 05 06 , say,

or

SET AT 12 05 06

exit is then made to the control program.

*NOTE: The difference in the reported rise and set times and the actual rise and set times can approach the "increment to GMT" elected by the user when initializing the system.

SIGN OFF (1) MOD (2) NEXT RUN (3) PRINT (4)
2*

SUN (1) DATA PROCESSING (2) SCAN (3) RECORDING (4) TIMING (5) OTHER (6)
6*

RA-DEC DISPLAY (1) CORRECTION (2) PARAMETERS (3) ACQUISITION (4)
7*

DO YOU WANT TO ADJUST STRIP CHART RECORDER (Y OR N)
Y*

CARRIAGE RETURN TO STOP ADJUSTMENT
*

Fig. 1. Sample of on-line log.

PLOT

The Pointing Program System contains a routine which drives the strip chart recorder that is connected to the computer by means of the general purpose output channel No. 5. Whenever the Pointing Program System is asked to command the antenna in real time, the commands are subtracted from the actual antenna angles and the resulting difference is plotted on the strip chart recorder. The errors in azimuth and elevation axes are plotted on separate recorder channels. The antenna azimuth and elevation are recorded on two additional channels. A time mark is recorded on the chart at the beginning of every minute.

A facility for adjusting and calibrating the recorder is provided. Upon request through the keyboard, adjusting signals are output to the recorder. When adjustments have been made, a calibration record will be recorded on each channel, which shows linearity of the plot.

The on-off control of the recorder paper drive is accomplished through the computer automatically.

PROGRAM INPUTS

The program uses the following in-core inputs:

U(INELEVADD)	The location of first word storage of the presently incoming elevation angle.
W(112)	Elevation buffer control word.
L(SYSTAT1)	Code for indicating that the system is cycling. (Plus means system is cycling, minus means system is stopped.)
U(SECONDS)	Time in seconds B0

In addition to the above, the program uses the real-time antenna angles and commands from the appropriate buffers.

Figure 1 shows the on-line communication sequence for calibrating the system. The program can be controlled only through the attention symbol path.

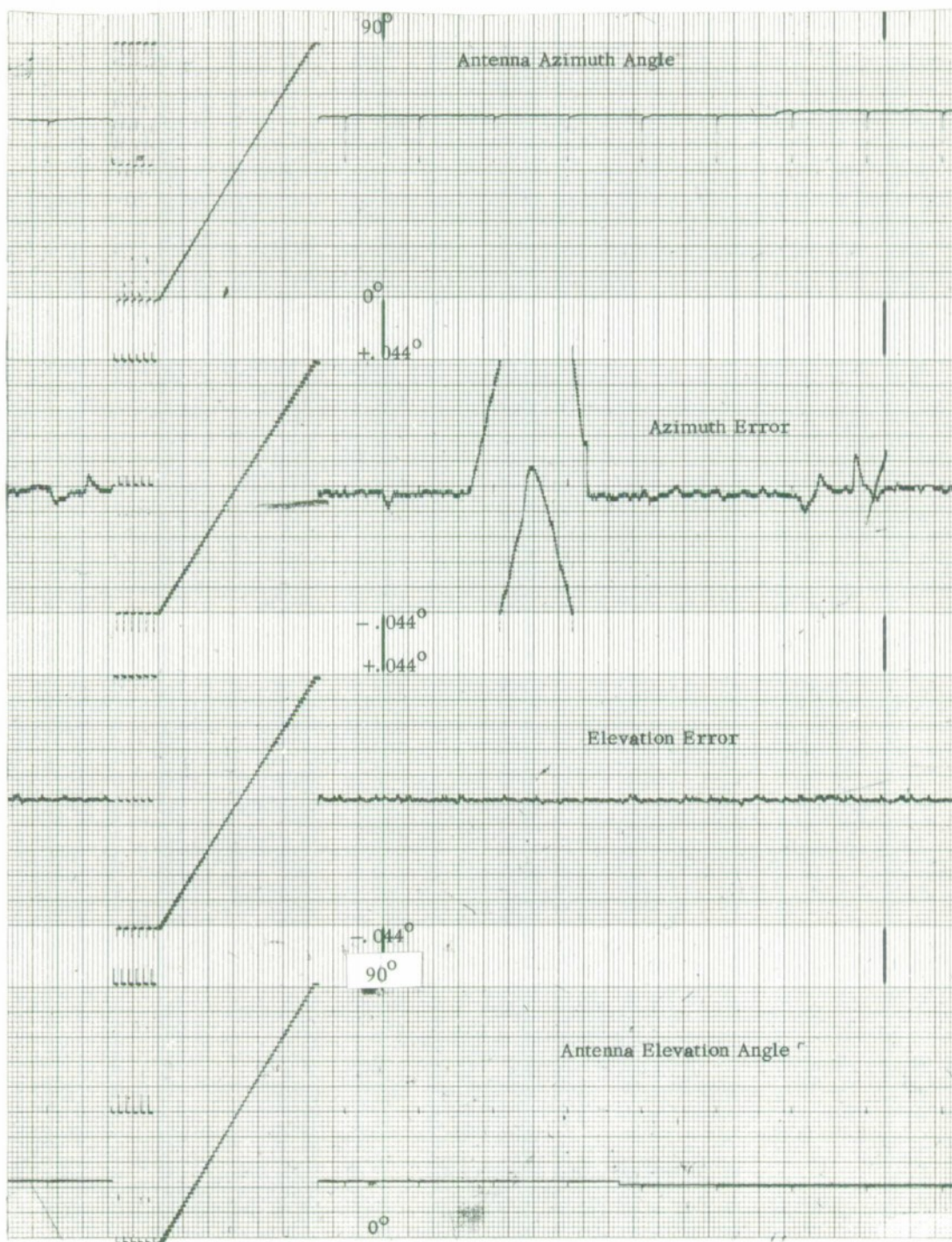


Fig. 2 Sample strip chart recording.

PROGRAM OUTPUTS

The output on the strip chart recorder is shown on Fig. 2. Initially the figure shows the plotted errors and angles in the indicated channels, as they would appear on a normal run. Then the adjust mode was requested through the attention symbol entry. A few cycles of adjust mode are shown; however, this mode can be kept as long as desired until proper adjustments have been made. When the adjust mode is stopped by means of the keyboard, a calibration record will be recorded as shown and the recorder will return to the normal mode of plotting antenna angle information.

The scale factors for plotting are fixed. As shown by Fig. 2, the azimuth and elevation angles are plotted with 90° as full scale. Angles in other quadrants are plotted modulo 90° , so that an uncertainty exists. The recorder resolution is 64 levels. In the error signal plots one level corresponds to twice the low order bit resolution of the antenna encoder system, with the zero reference signal half way up the charts. This provides a full scale error amplitude of approximately $\pm .044^{\circ}$. If the error magnitude exceeds $.044^{\circ}$, the pen will move to the other side of the graph and continue plotting larger errors. The example of Fig. 2 shows this phenomenon as the error was purposely made large on the azimuth axis.

PROGRAM NOTES

The strip chart recorder is programmed by means of the external function on channel No. 5. The function word is divided into four six bit values to be plotted, one bit for turning on the recorder, and a fixed five bit code as follows:

29-25	Fixed code 01010
24	Paper drive code
23-18	Channel #4 value
17-12	Channel #3 value
11-6	Channel #2 value
5-0	Channel #1 value

The timing for the plot program is obtained from the elevation input buffer. Every two seconds the master control program gives a monitored IN command on

the elevation channel (channel 10). In the working entry of the Plot program, the buffer control word is changed so that a suitable time delay is obtained. The adjust and calibrate plots use a two second plotting increment, the normal data is plotted every .04 seconds and the time marks are .24 seconds long. When the interrupt occurs, a new buffer control word is set up so that the next interrupt occurs after the desired time increment.

Three entries exist to the program:

1. initialization entry
2. working entry
3. interrupt entry

The initialization entry (PLOTINIT) sets up the interrupt register on the elevation-input channel and, if the system is cycling, it asks the appropriate questions about adjusting and calibrating, and sets up a code for plotting mode in U(PLOT B). The code is:

- | | |
|---|---------------------|
| 0 | for normal plotting |
| 1 | for adjustment |
| 2 | for calibration |

Every two-second cycle the Plot Program is entered by means of the working entry (PLOTWORK). This routine first examines the above code and acts according to what has been requested.

If the code indicates that normal plotting is required (PLOTCASE), the working section sets up the appropriate buffer control word for interrupts to occur at proper time intervals and plots a time mark if the beginning of a minute is detected.

If the code indicates that adjustment is to be performed (ADJUSTCASE), the program makes the pen move zero, half scale, full scale in two-second intervals.

If calibration is requested (CALCASE), a stair case will be plotted with two-second long steps one plotting increment high.

The interrupt entry (PLOTINTER), examines whether the system is cycling and either turns off the recorder or does the following: it writes a time mark if the beginning of a minute is indicated; otherwise it computes the differences between commands and the actual antenna angle, and plots them.

PRLOG

INTRODUCTION

The Printer Logging program (PRLOG) provides the means whereby any of the Haystack Pointing System programs may output information on the high-speed printer while the system is operating.

PRLOG transfers the field data information set up by the user program to one of the 20 buffer areas of its own.

As the printer becomes available, the program prints these areas in order received.

The calling sequence for PRLOG (described below) has provision for a priority structure among program messages. Additionally, page spacing facilities are provided.

INITIALIZATION SECTION

PRLOG is initialized by the control program (MCP) during each system initialization.

WORKING SECTION

Interaction between PRLOG and the user program is through the working section via U(PRLOG). PRLOG's working section first saves all operational registers it uses. Next, PRLOG's current in-out indexing registers are restored, and the pertinent information from the calling sequence is obtained. A check is made on the status of the high-speed printer. If the printer is not operative, the operational registers are restored and control is transferred to the user program's busy return. Otherwise, a check is performed to determine if the message to be printed is classified as emergency. If the message is not emergency data, further check is made to see if the RADIOMETER SWITCH* is set. If the RADIOMETER SWITCH is set and the request for printing does not override this switch, control

*This switch was first used in connection with the radiometer signal processing program; hence, the name.

will be transferred to the user program's busy return. If the request for printing does override this switch, or if the switch is not set, the message is handled as follows:

First a check is made to see if there is room for the message in PRLOG's 20 buffer areas. If there is no room, the operational registers are restored and control is returned to the user program's busy return. With room for more messages, the MOVEDATA routine transfers the data from the user program's buffer area to an empty internal buffer and indexes the input index register. If there is a previous message not yet fully printed, control is given to the user program's normal return. If the new message can be output at this time, it is. Requested spacing and top-of-paging are performed at this time. Lastly, the operational registers are restored and control is transferred to the user program's normal return.

If a message is labeled as "emergency" in the calling sequence, it is printed at the first available time, taking precedence over all other messages in the PRLOG internal buffer areas. In addition, emergency messages may space after printing (to bring the message into view of the operator).

INTERRUPT SECTION

As in the working section, the first operation in the interrupt section is to save the operational registers. If the interrupt status is anything but normal, a switch is set to "channel inoperative". The operational registers are restored and the program exits.

CALLING SEQUENCE

α	RJP U(PRLOG)	
$\alpha + 1$	#Words	FWA
$\alpha + 2$	\pm SBP	$+$ \rightarrow TOP; $-$ \rightarrow SAP
$\alpha + 3$	BUSY RETURN	
$\alpha + 4$	NORMAL RETURN	

The first word of the calling sequence in the user program at α contains
RJP U(PRLOG)

The second word at $\alpha + 1$ contains

1. (In the upper half) the number of field data words to be transferred from the user program to the PRLOG program's buffer area. A maximum of 26_{10} words (128 characters) can be transferred at one time, to accommodate one line on the high-speed printer.
2. (In the lower half) the first word address of the data to be transferred. *

The third word of the calling sequence at $\alpha + 2$ is interpreted as follows:

1. (In the upper half) a dual parameter specifying both the identity of the user program and the number of lines the printer is to be spaced before printing this line (SBP).

PRLOG takes the absolute value of this parameter as the value for SBP. If SBP is negative, the setting of the RADIOMETER SWITCH is ignored. If SBP is positive, the line will not be printed if the RADIOMETER SWITCH is set. This feature allows specified programs to monopolize the printer (except for emergency messages).

2. (In the lower half) a dual parameter specifying a) the number of lines the printer is to space after printing the message if and only if the message is deemed of an emergency nature and b) whether or not a top-of-page is to be issued before printing this line.

If this parameter is positive (it may only be +0 or +1) PRLOG interprets this message as non-emergency and will take the following action:

- a. + 0 \rightarrow no action
- b. + 1 \rightarrow top-of-page before printing

If this parameter is negative PRLOG accepts this message as emergency data and will space after printing the number of lines equal to the absolute value of this parameter.

It should be noted that in the normal case there is no spacing after printing.

*CAUTION . . . The field data character "STOP" (77_g) must not be included in the field data string to be output. PRLOG provides stop information to the printer on partial line output.

The fourth word of the calling sequence at $\alpha + 3$ is the busy return.

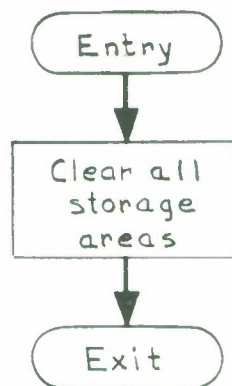
When control is returned here, the "A" register indicates the reason the request could not be accepted for output.

1. A positive zero indicates all the PRLOG buffer areas are full.
2. A negative zero indicates that the RADIOMETER SWITCH is set (and this calling sequence has a positive SBP), or that the printer channel is inoperative.

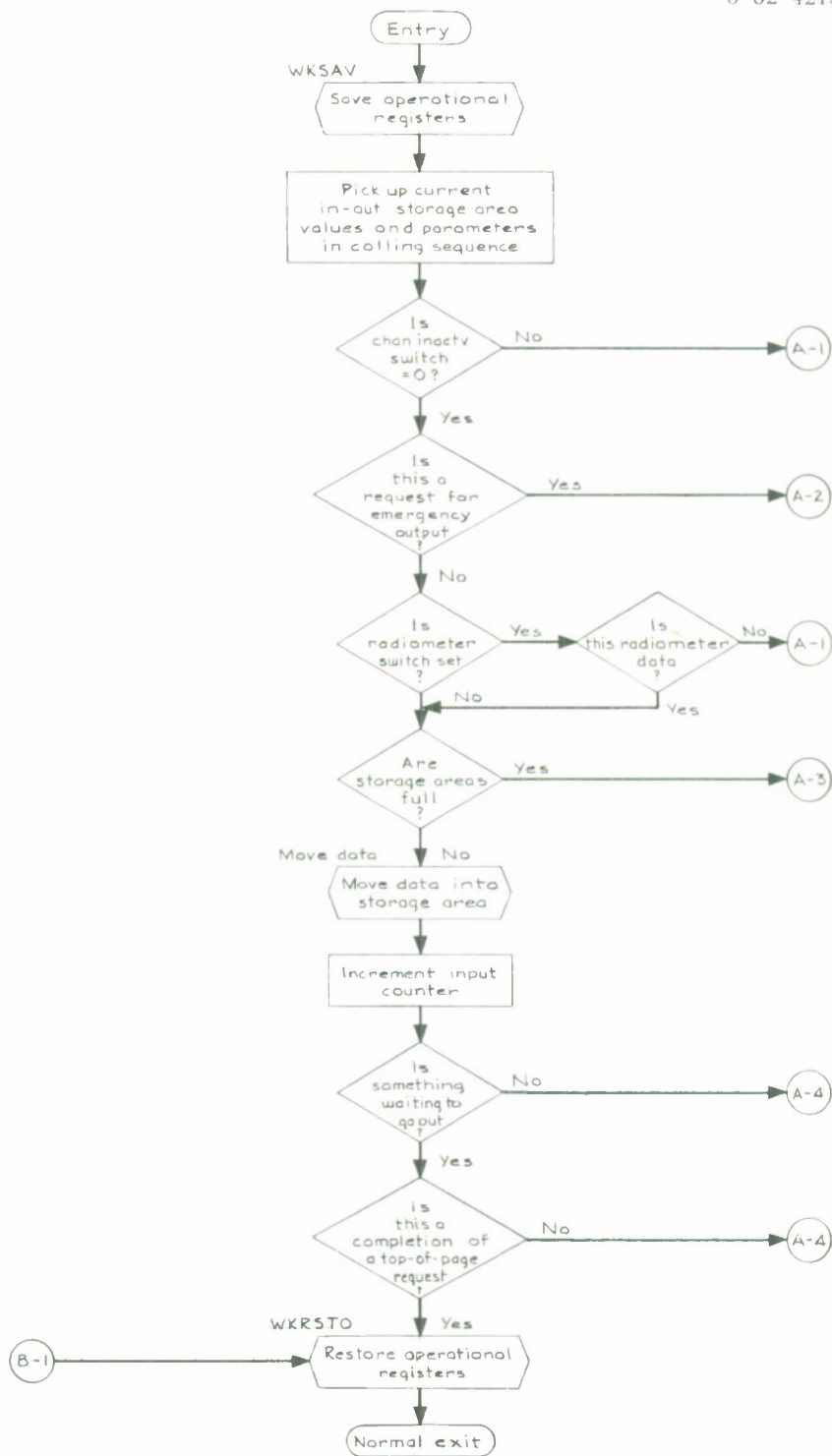
The fifth word at $\alpha + 4$ is the normal return.

Control is returned here if the data was successfully transferred and has been output or is waiting to be output.

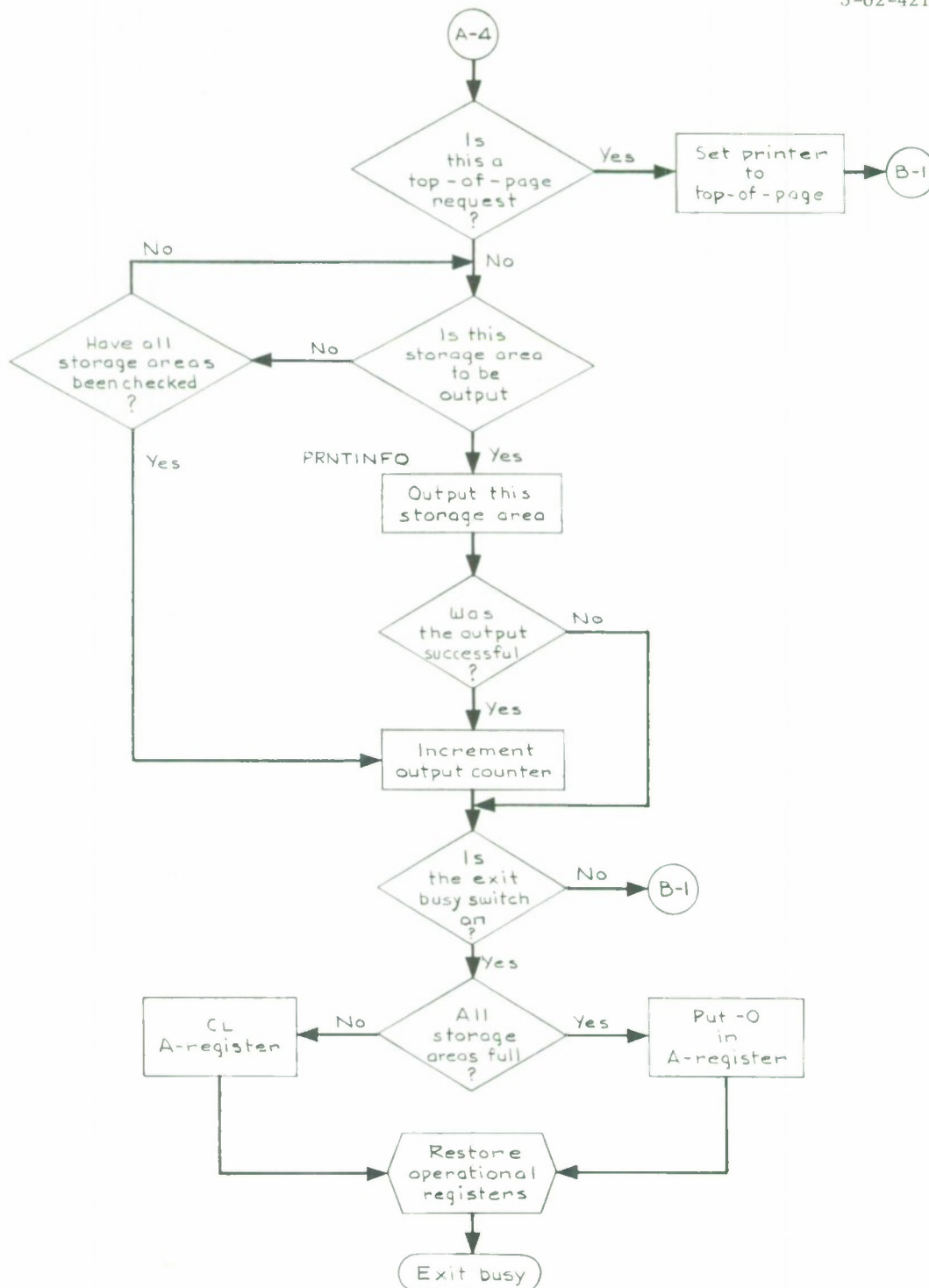
3-62-4214



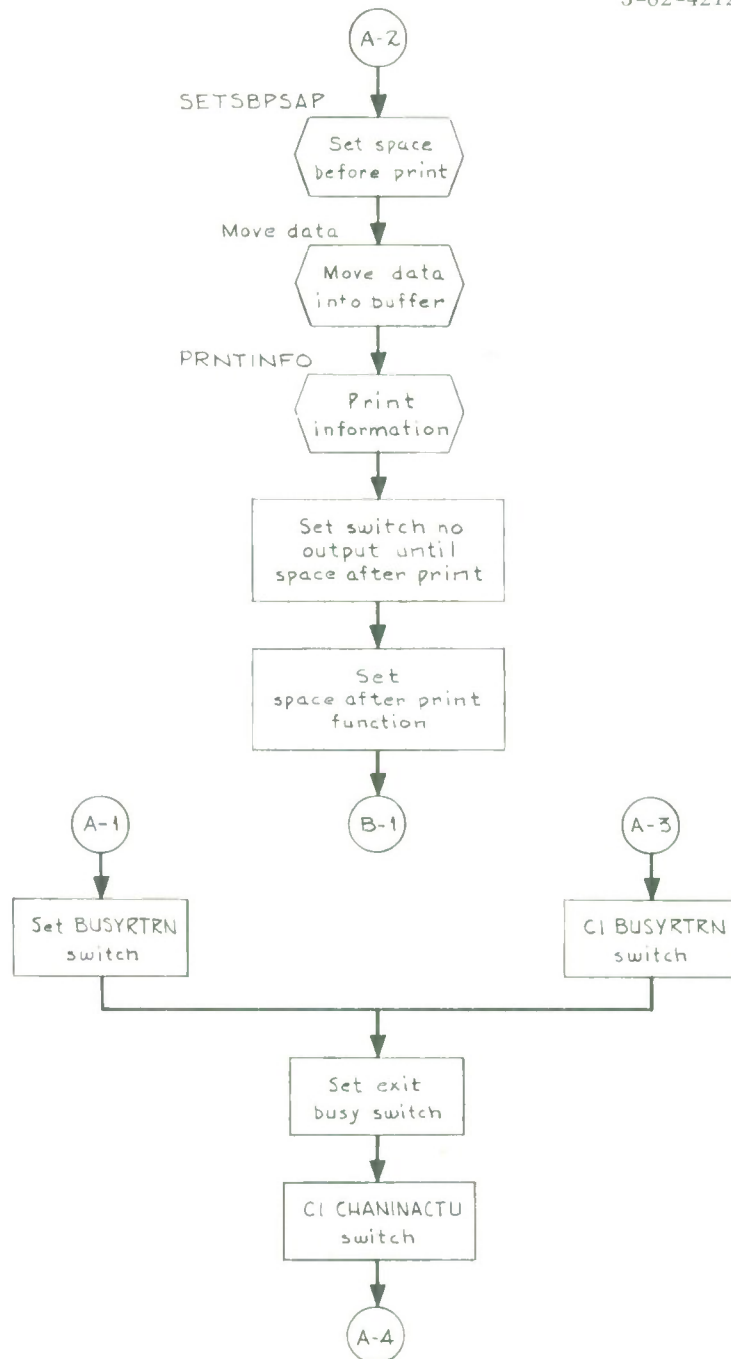
PRLOG PROGRAM INITIALIZATION SECTION



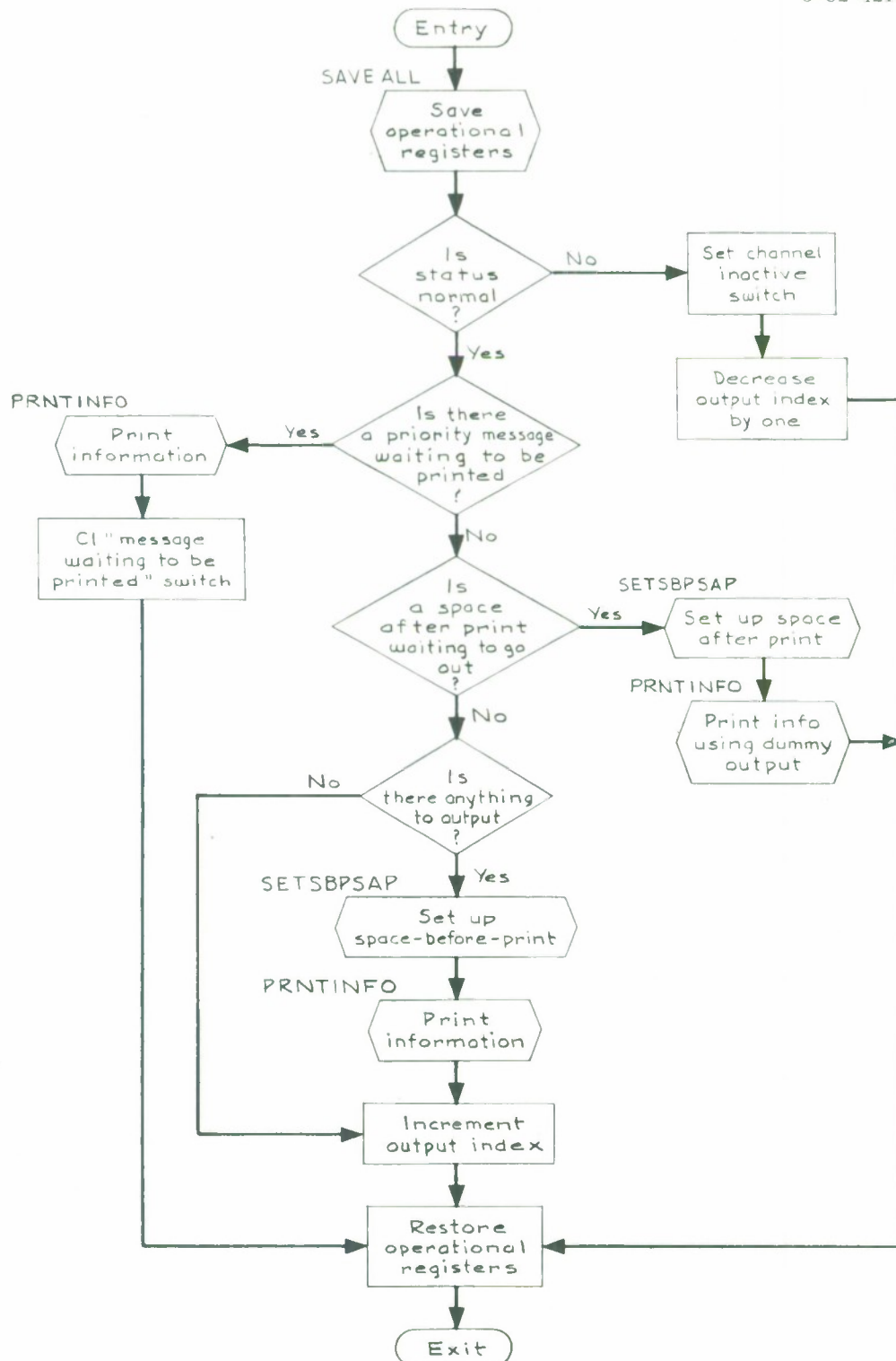
PRLOG PROGRAM WORKING SECTION



PRLOG PROGRAM WORKING SECTION (con't)



PRLOG PROGRAM WORKING SECTION (con't)



PRLOG PROGRAM INTERRUPT SECTION

RECORDING

INTRODUCTION

The Recording Program of the Haystack Antenna Pointing System records data on magnetic tape in binary, high density. These data are provided by the user programs in the form of initial and terminal addresses of blocks to be recorded. The Recording Program does no interpretation of data. Rather it is a central facility for handling recording as requested by a number of user programs. In doing this, it provides for the handling of tape status codes of various kinds, such as parity and end of tape, and for the proper heading of an experiment.

BUFFER CONTROL WORD SET UP

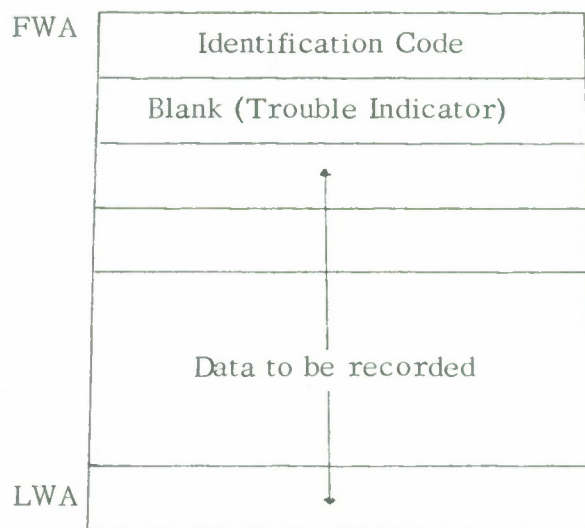
A block of 50 registers in Common Storage (C/S) starting at RECFILE is set aside for the user programs to set up recording requests. A user program is assigned one or more register numbers in that block. Let n be one such register. When the user program wishes to record a block of data starting at say FWA and ending at LWA, the user program sets up $\text{RECFILE} + n$ to the proper buffer control word.



When the Recording Program is in the process of writing the block specified in $\text{RECFILE} + n$, it issues an OUT command with this word as the buffer control word (BCW). $\text{RECFILE} + n$ is set to -0 at this time. When the block has been completely written $\text{RECFILE} + n$ is set to $+0$. A user program may, therefore, set up the appropriate RECFILE register whenever it contains $+0$. It may also change that RECFILE register whenever it does not contain ± 0 taking note of the fact that the recording program may interrupt and begin output of the data specified by that register. Thus, a user program which changes RECFILE must provide suitable interrupt lockout while inspecting and changing the RECFILE register.

FORMAT OF BLOCKS TO BE RECORDED

The block to be recorded starting at FWA and ending at LWA must be of the following form:



The Identification Code is assigned to each program arbitrarily. It usually would be the 5 character Fielddata System Name of the program. The Trouble Indicator is a blank register used by the recording program to indicate that some sort of trouble was encountered in writing the previous record. The data to be recorded occupy the remaining registers of the block.

OPERATION

A. Initialization

When recording is initialized, C/S KYBRDLEVEL is first examined to ascertain whether or not the teleprinter may be used during the sequence. If use of this device is denied, Recording simply indicates that a new heading record is in order and normally exists without further ado.

If the teleprinter is available, Recording will ask the user (via Intercom) how much system data recording is desired. If the user elects "complete recording" the entire contents of common storage including all values that are computed directly as well as all incoming data and outgoing interpolated data will be recorded (currently

6000₈ words). On the other hand, a request for a "partial recording" will result in the recording of only the directly computed values (currently recorded in this mode are 151₈ words). As a third choice, the user may elect no system data recording. The user's decision is communicated via C/S RECORDSWITCH to the control program, MCP, which sets up the appropriate buffer control word in the RECFILE block. Irrespective of the amount of system recording desired, the working section of Recording is entered once each frame, since programs other than MCP are free to exercise the recording option.

If the amount of data recording requested was "none" and if the system is cycling (reinitialization) the program exits. If, however, the amount of data recording requested was "complete" or "partial", an indication is made that a new heading record is required and then if the program is being reinitialized, an exit is made.

If the system is not cycling, an initialization is assumed and Recording sets all its indicators and switches to normal.

B. Finalization

When the Recording program is entered in the initialization section with the A register set to non zero, Recording waits for any output-to-tape in progress to finish and then writes an end-of-file on the tape and rewinds it with interlock. An indication that this finalization procedure has been carried out is made in C/S SYSTATD.

C. Working Section

Each frame the control program enters the working section of the Recording Program to initiate recording for that frame. Successive records are written by the interrupt answering routine of the Recording Program until RECFILE has been exhausted.

A heading record is written as the first record of a tape, and the first record of a new experiment. If an experiment takes more than one tape, the tape number is indexed in the heading.

Data records are recorded from locations specified by the buffer control words in RECFILE. If an abnormal condition occurs in writing a record (the most common being a parity), the record is not rewritten. Rather an indication of such a trouble (-0) is written in the second word of the next record to be written. If the record is written normally, the second word of the next record is set to +0.

If a buffer control word brings the number of words to be recorded in a frame past a set limit*, this fact will be logged on the high-speed printer, and this word in RECFILE will be cleared, and no recording will take place of this data block.

If an end-of-tape is reached, the unit is rewound with interlock, the tape number is indexed, and a heading record is written on the next tape unit which is set up for recording. †

If a tape unit is interlocked, and noted in C/S INTERLCKSW, this fact is logged on the high-speed printer. When the unit is readied, the first record written will be the heading record.

If a unit is rewinding, another attempt at writing a heading record is made.

COMMON STORAGE REGISTERS SET

Common Storage Registers Set

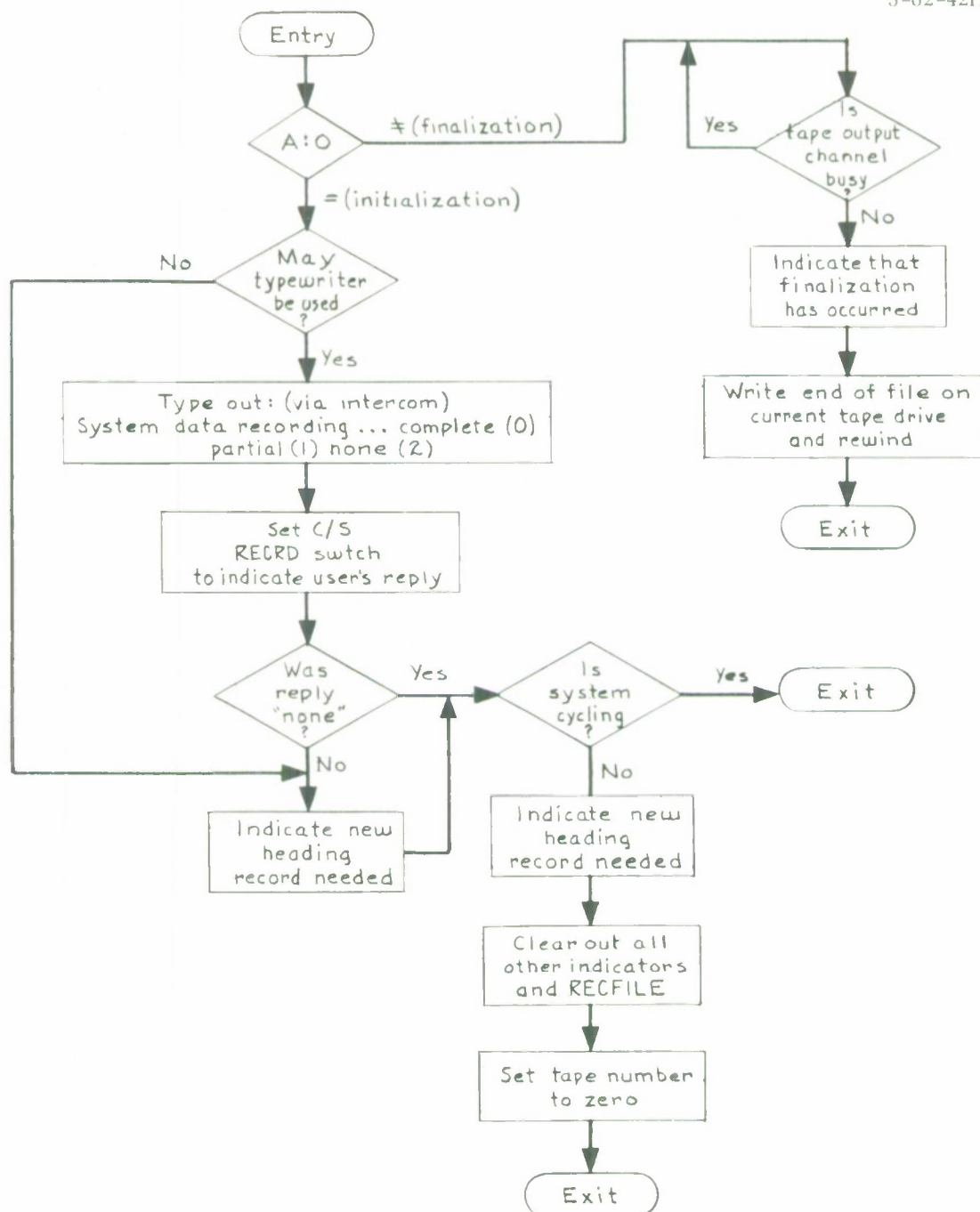
L(RECRDSWTCH)	to 0, 1 or 2 for complete, partial or no recording respectively
U(INTERLCKSW)	to +0 → interlock on magnetic tape; + ∅ → no interlock
W(RELEASESW)	to +0 → recording finished; -0 → recording not finished
W(SYSTATD)	to +0 finalization not done -0 → finilization done
W(RECFILE) (50 registers)	to +0 recording of this data done -∅ recording of this data is in progress

Common Storage Registers Read

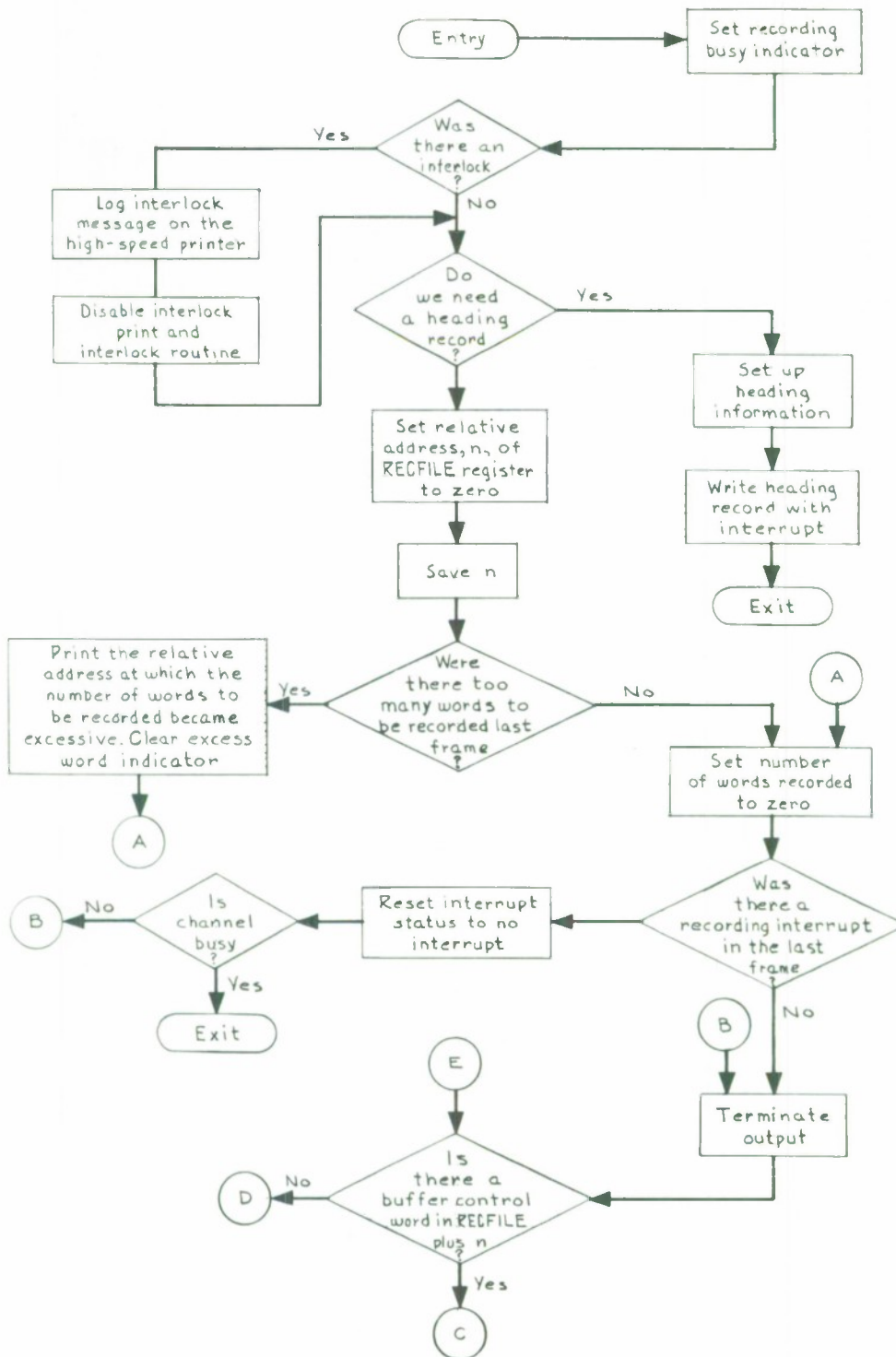
W(KYBRDLEVEL)
W(EXPNAME) (16 registers)
W(YEARMONTH)
W(DAY)
W(CELBODY) (3 registers)
W(SYSTAT 2)
L(SYSTAT 1)

*This limit is now set at 10000_d words.

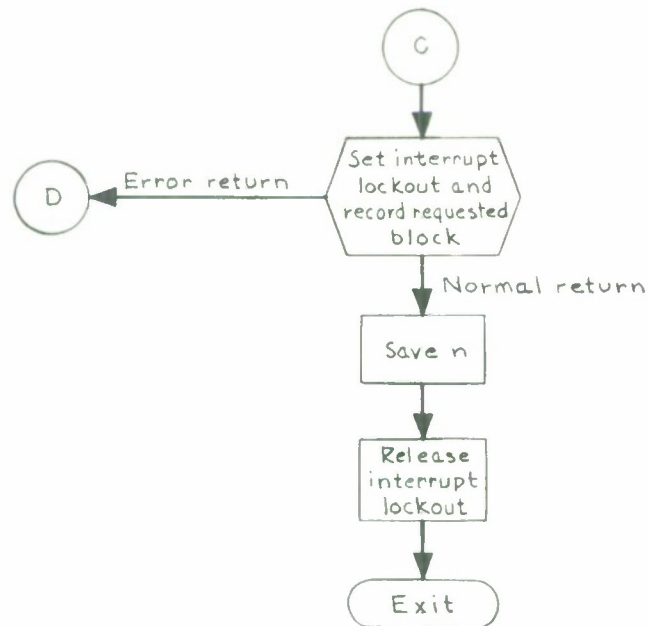
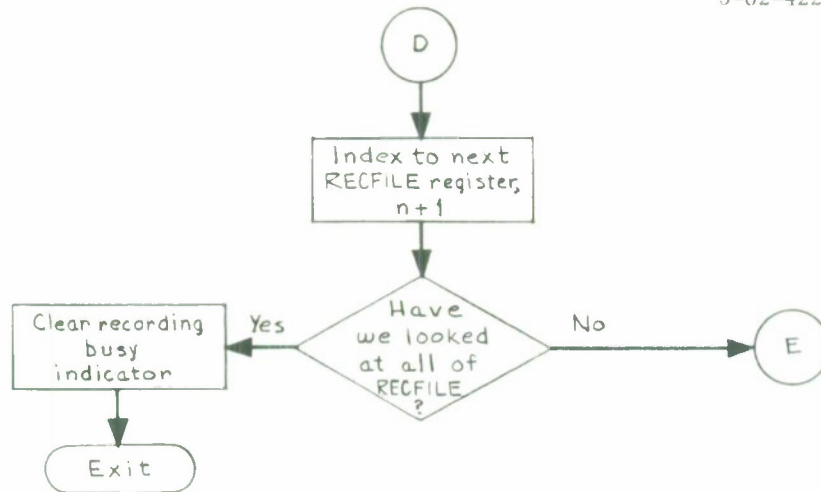
†Recording begins on servo 2, switches to servo 3 then back to servo 2 etc. indefinitely as required.

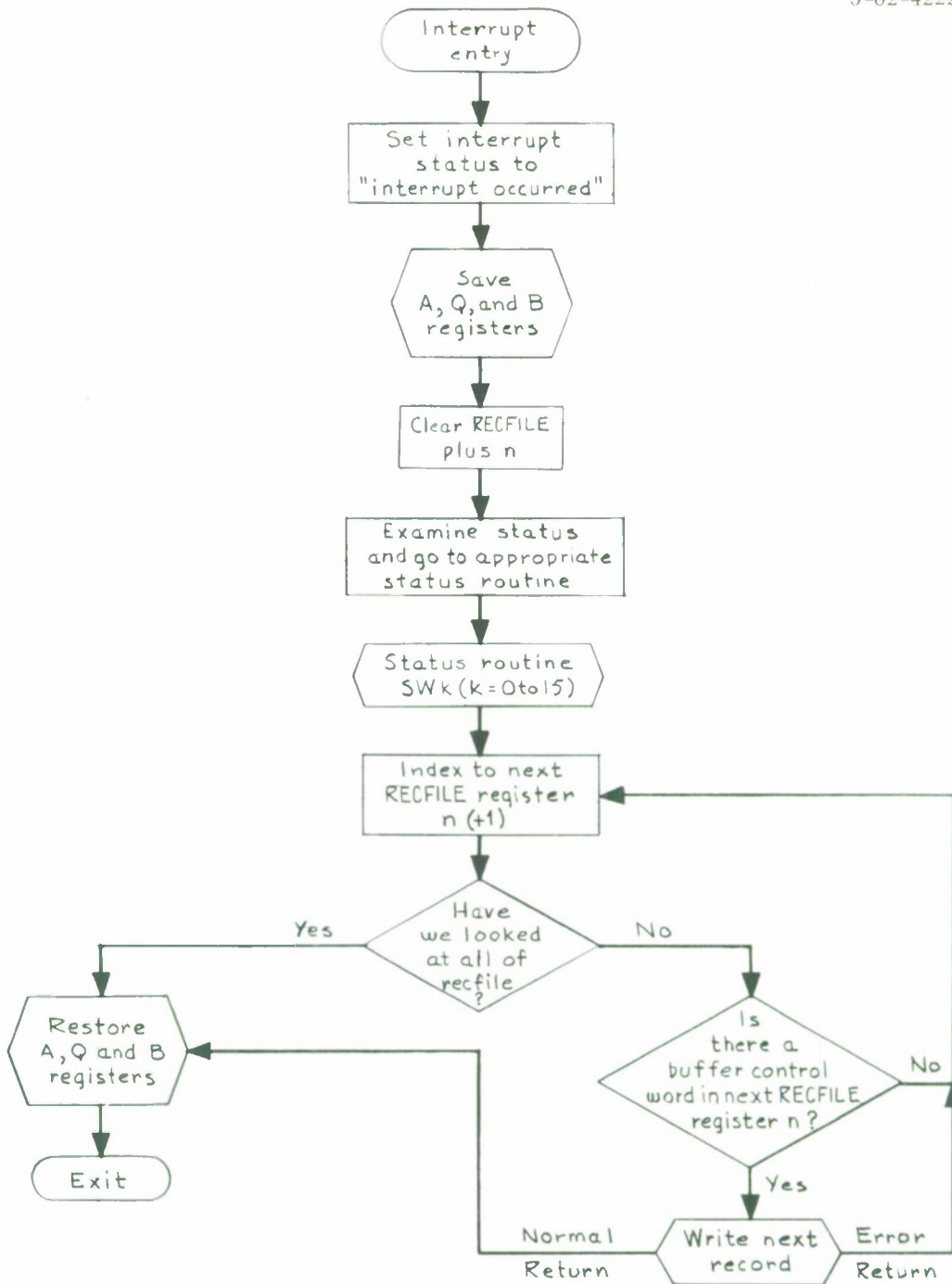


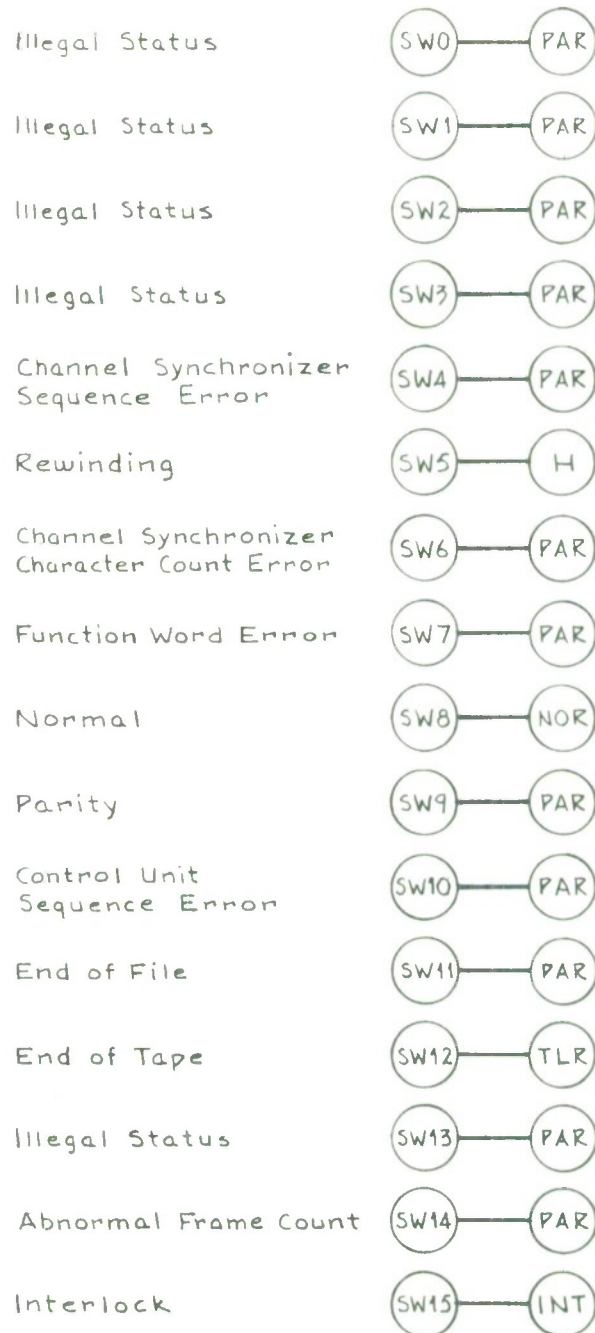
RECORDING PROGRAM INITIALIZATION AND FINALIZATION SECTIONS



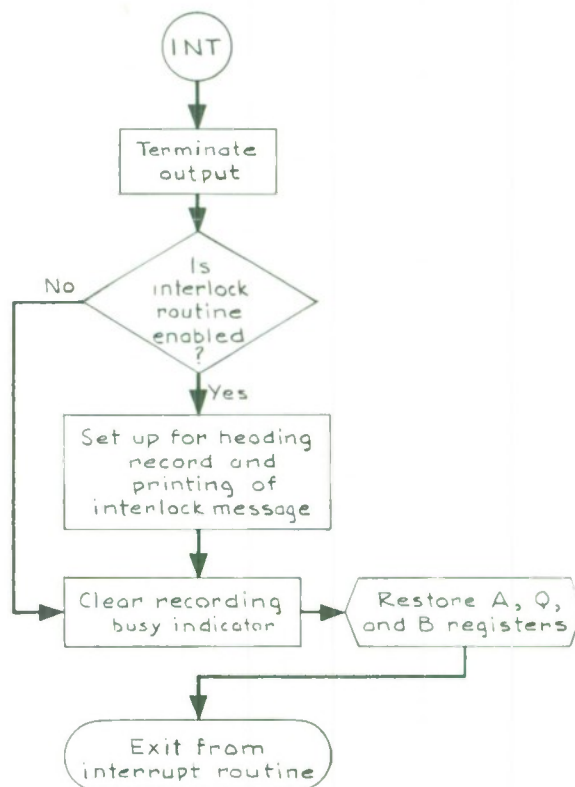
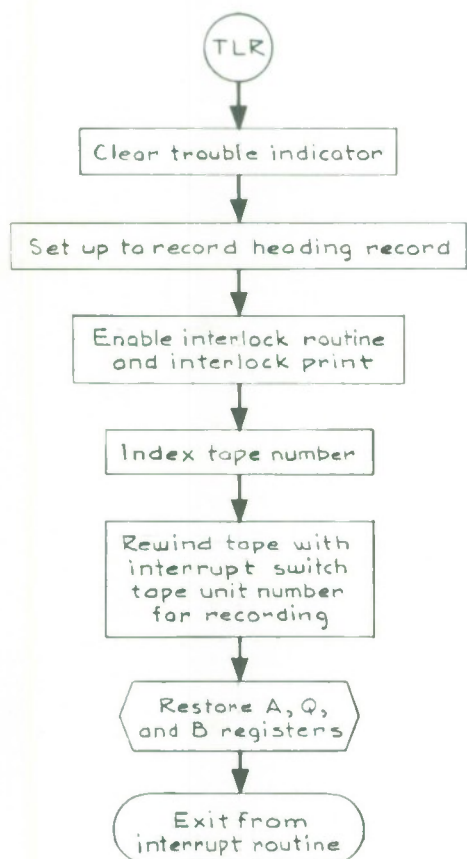
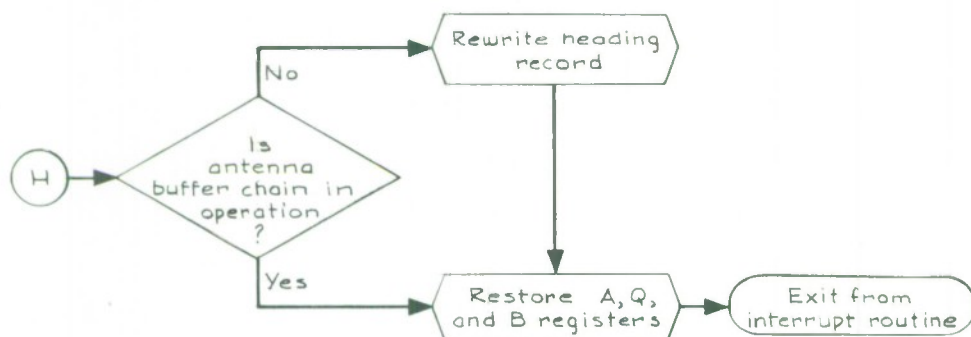
RECORDING PROGRAM: WORKING SECTION

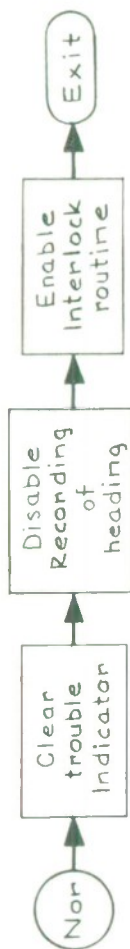




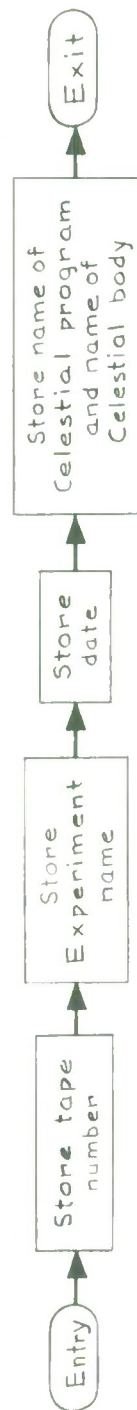


STATUS SWITCHES

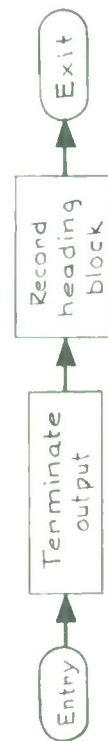


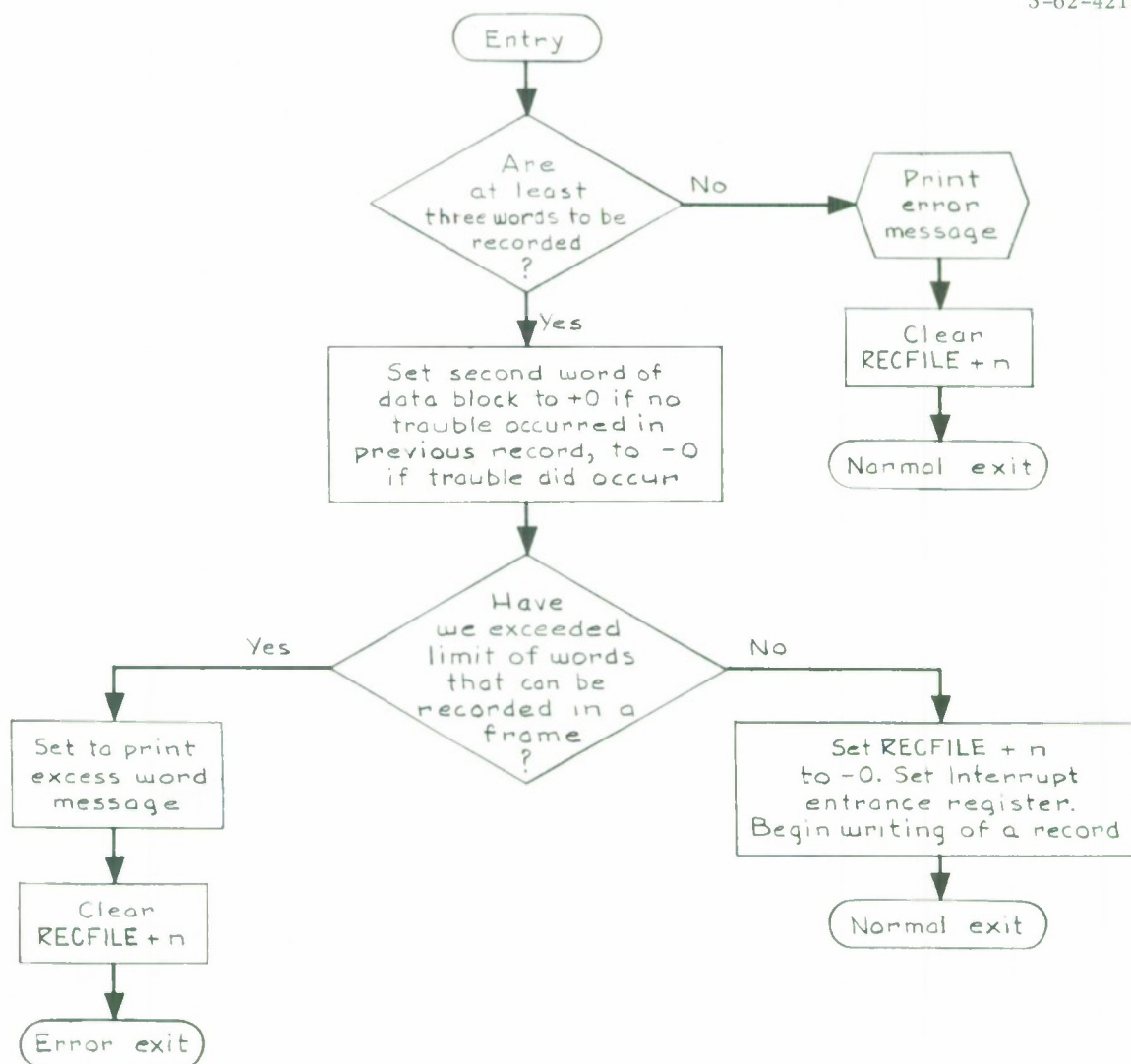


Set Up of Heading Block



Heading Block Recoding





WRITE

WFORD/MSTONE INTERSITE COUPLING

INTRODUCTION

As the Haystack Pointing System (HPS) cycles, pointing information in the form of azimuth, elevation, range, and doppler data is automatically output to the equipment interfacing both the West Ford* site and the Millstone[†] site.

Because historically the West Ford site was first to be coupled to Haystack, the program in the system which prepares these data for output is known as the West Ford program (WFORD).

This program, then, services the system intersite coupling requirements connected with going from Haystack to the two remote sites. Purely as a matter of convenience for the present, WFORD also initiates input from the Millstone site, but in fact does nothing with these incoming data.

INPUT

WFORD uses information in Common Storage (C/S) Registers FREQUENCY, WFFREQ, MSFREQ, WFADD, MILLSTNADD, AZIMADD, ELEVADD, DOPPADD and RANGEADD as well as the actual Haystack interpolated values of azimuth, elevation, and doppler, and the mid-interval value for range.

OUTPUT

Every system frame WFORD prepares a buffer table of values of azimuth, elevation, range, and doppler for each site; Fig. 1 shows the word format for West Ford; Fig. 2 for Millstone. Each datum is separated from the next by 50 ms in time. Each of the two buffer tables for each site contains data for a two-second interval (the HPS cycle rate). Hence each West Ford buffer requires 120 words of storage while 160 words are needed by each Millstone buffer. The WFORD

* Haystack-West Ford Intersite Coupling Link, Group Report 1964-25 dated 14 May 1964 by J. E. Gillis, DDC 601143, H-585.

† Haystack-Millstone Intersite Coupling System, 18 May 1964 (private communication).

program prepares the data for output, but the actual OUT (using an externally specified index) is issued by the control program at the time that the Haystack interface signals that it needs more data.

INITIALIZATION

The doppler frequency to be output to each of the two sites must be in the ratio of the site frequency to the Haystack frequency. Additionally the West Ford doppler must be in units of kilocycles as opposed to cycles for Millstone and Haystack. The initialization section computes these ratios and saves them as multiplicative factors to be used by the working section of WFORD to modify the doppler computed for Haystack. The initialization section presently issues the original IN command to the Millstone input interface equipment. Subsequent IN's are issued by the WFORD interrupt section.

OPERATION

In the operation section of WFORD, the azimuth, elevation, range, and doppler data prepared for output to the Haystack system for the next frame are suitably manipulated and adjusted to conform to each site's word format and data rate.

In the case of azimuth and elevation every 12.5^{th} ($12.5 \times 4 \text{ ms} = 50 \text{ ms}$) Haystack datum is used with the least significant bit being made $360^0/2^{15}$ rounded ($\sim .011^0$) rather than $360^0/2^{19}$

In the case of doppler, the value valid for Haystack at the mid-point of the interval is used. First the +750 kc Haystack bias is removed and the resultant frequency is multiplied by the appropriate pre-computed ratio to yield doppler in cycles per second for Millstone and kilocycles per second for West Ford. This quantity is now converted to quasi-BCD and is used as the doppler for the entire two-second interval. For West Ford this value is output as both monostatic and bistatic doppler.

For range, the value computed for Haystack at the mid-point of the interval is converted to nautical miles (binary) for West Ford and to units of 1 microsecond (BCD) for Millstone. The single value is used over the entire two-second interval.



DATA SET: HAYSTACK TO WESTFORD
U490 COMPUTER WORD FORMAT

Fig. 1. Data set; Haystack to Westford U490 computer word format.

Data Set: Haystack to Millstone
U490 Computer Word

Bit No.	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Word No. 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2 ¹⁴														2 ⁰
2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2 ¹⁴														2 ⁰
3	1	0	0	0	0	0	2 ³			2 ⁰ 2 ³				2 ⁰ 2 ³			2 ⁰ 2 ³			2 ⁰ 2 ³			2 ⁰ 2 ³	2 ⁰	2 ³	2 ⁰	2 ³ *	2 ⁰		
4	1	1	0	0	0	0	+2 ²			2 ⁰ 2 ³				2 ⁰ 2 ³			2 ⁰ 2 ³			2 ⁰ 2 ³			2 ⁰ 2 ³	2 ⁰	2 ³ *	2 ⁰	2 ³ *	2 ⁰		

*Least Significant Digit (LSD)

A. Haystack to Millstone

The data to be sent from Haystack to Millstone will be at a 3-kc rate and in the form of a set of four 30-bit words containing information as follows:

Word 1: Azimuth; 15 bits, $LSB = 360^0/2^{15}$

Word 2: Elevation; 15 bits, $LSB = 360^0/2^{15}$

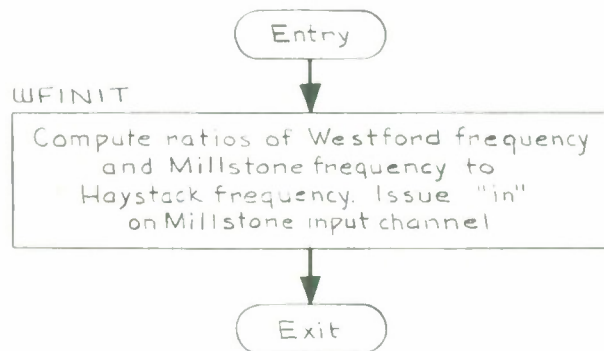
Word 3: Range; 6 BCD characters, $LSB = 1 \mu sec.$

Word 4: Doppler; 6 BCD characters, $LSB = 1 cps$

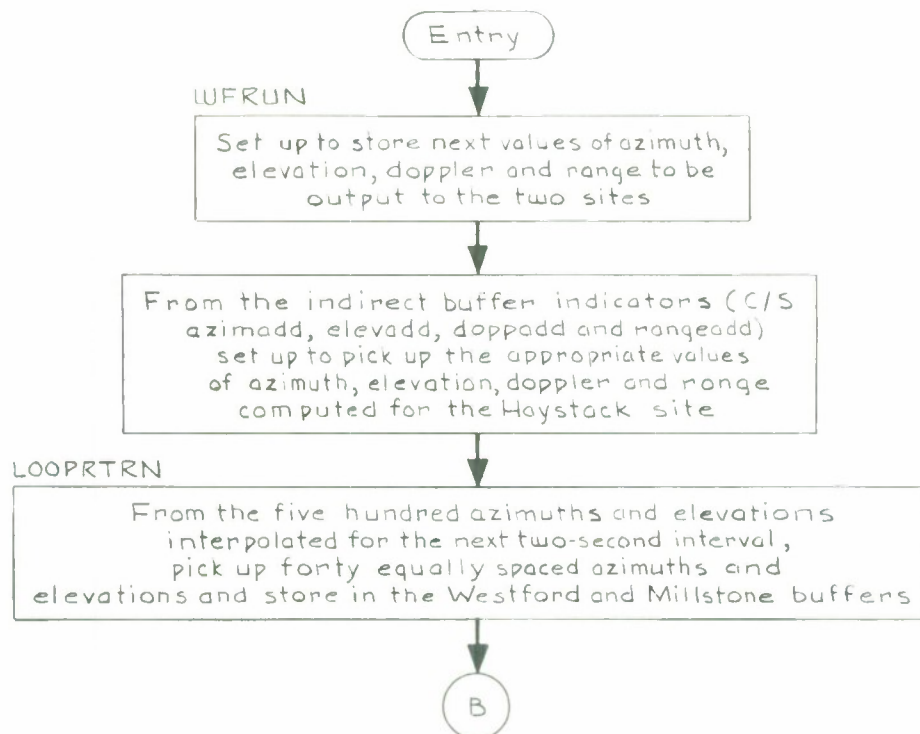
The data set will be transmitted 20 times per second.

Fig. 2

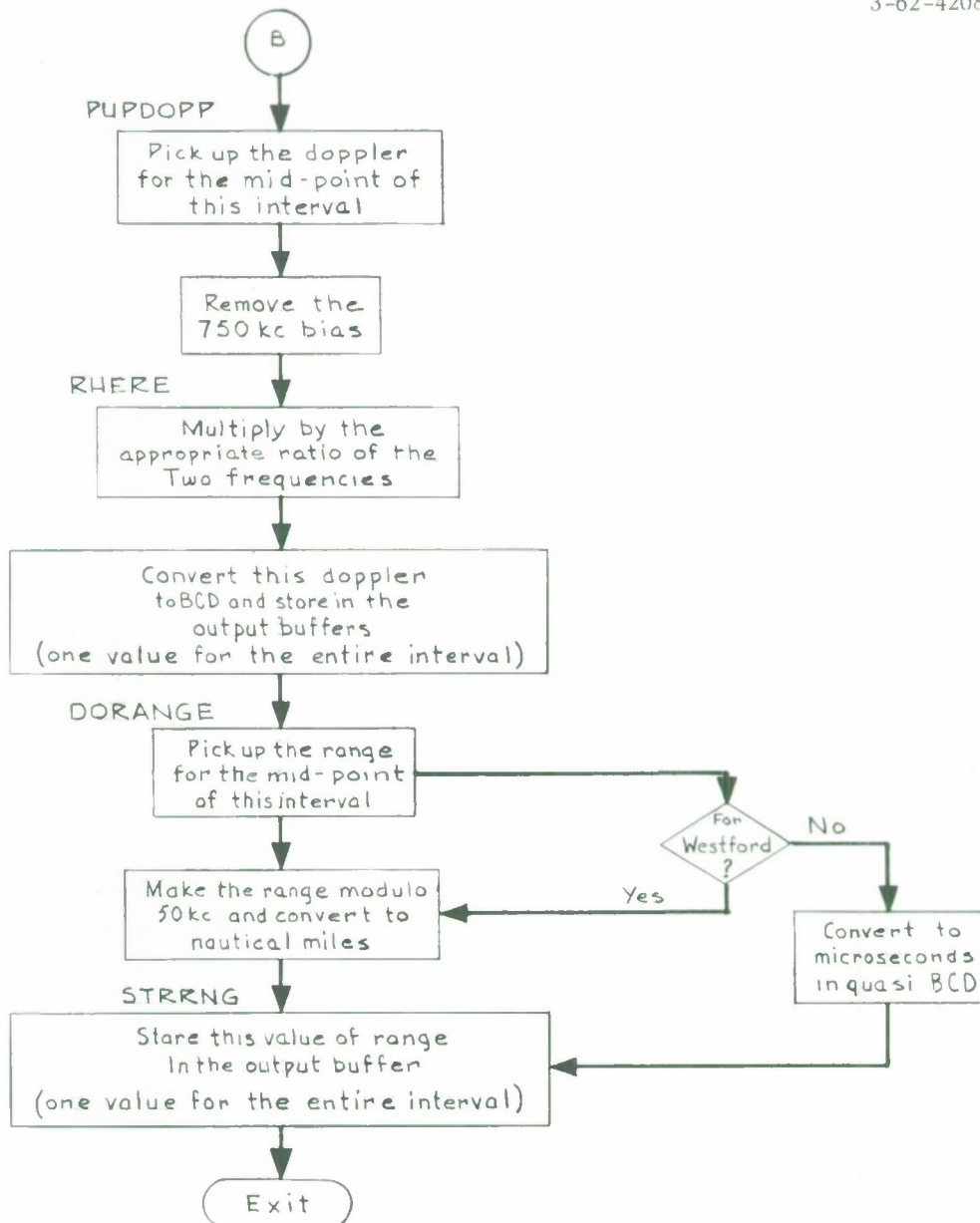
Initialization Section



Working Section



INTERSITE COUPLING PROGRAM: FLOW CHART



CAROS	L1	IO	LABEL	TA	STATEMENT	LOC	F	JKB	Y	NOTES
*	C0000		CHANGECORE	PROGRAM	S.J.WHITE*MAR.25*64					
*	C0001		CHANGECORE	U-TAG	CHANCORE*CHANCORE	00000				
*	C0002			FO	1*CHCOR	00001	00002		00002	
*	C0003		CHANCORE	ENTRY		00002	61000		00000	
*	C0004		BEGIN	CL	W(WHISCONT)	00003	16030		00103	
*	C0005			PUT	-0*W(LOCNUM)	00004	10040		77777	
						00005	14030		00102	
						00006	65020		63426	
*	C0006			RJP	U(INTERCOM)	00007	00055		00057	
*	C0007			U-TAG	ASK*ADDRESS	00010	11420		00102	
*	C0010			ENT	A*U(LOCNUM)*AZERO	00011	61010		00002	
*	C0011			EXIT		00012	65020		63426	
*	C0012			RJP	U(INTERCOM)	00013	00000		00066	
*	C0013			O	CONTENTS	00014	10010		00102	
*	C0014			ENT	Q*L(LOCNUM)	00015	14010		00022	
*	C0015			STR	Q*L(AHEAO)	00016	14010		00025	
*	C0016			STR	Q*L(AHEAO1)	00017	14010		00037	
*	C0017			STR	Q*L(AHEAO2)	00020	65000		00043	
*	C0020			RJP	CONVQ	00021	15030		00072	
*	C0021			STR	A*W(MESS2)	00022	10020		00000	
*	C0022		AHEAO	ENT	Q*U(O)	00023	65000		00043	
*	C0023			RJP	CONVQ	00024	15030		00074	
*	C0024			STR	A*W(PLUS1)	00025	10010		00000	
*	C0025		AHEAO1	ENT	Q*L(O)	00026	65000		00043	
*	C0026			RJP	CONVQ	00027	15030		00075	
*	C0027			STR	A*W(PLUS1+1)	00030	10020		00103	
*	C0030			ENT	Q*U(WHISCONT)	00031	65000		00043	
*	C0031			RJP	CONVQ	00032	15030		00077	
*	C0032			STR	A*W(PLUS2)	00033	10010		00103	
*	C0033			ENT	Q*L(WHISCONT)	00034	65000		00043	
*	C0034			RJP	CONVQ	00035	15030		00100	
*	C0035			STR	A*W(PLUS2+1)	00036	11030		00103	
*	C0036			ENT	A*W(WHISCONT)	00037	15030		00000	
*	C0037		AHEAO2	STR	A*W(O)	00040	65020		63426	
*	C0040			RJP	U(INTERCOM)	00041	00070		00000	
*	C0041			U-TAG	KOUTCONT*0	00042	61000		00003	
*	C0042			JP	BEGIN	00043	61000		00000	
*	C0043		CONVQ	ENTRY		00044	11000		00000	
*	C0044			CL	A*	00045	12400		00000	
*	C0045			CL	B4*	00046	05000		00017	
*	C0046			LSH	Q*150	00047	06000		00003	
*	C0047		LOOP	LSH	A*3	00050	07000		00003	
*	C0050			LSH	AQ*3	00051	20000		00060	
*	C0051			A00	A*60	00052	71400		00004	
*	C0052			BSK	B4*4	00053	61000		00047	
*	C0053			JP	LOOP	00054	61010		00043	
*	C0054			EXIT		00055	06050		50505	
*	C0055		ASK	FO	O*A	00056	77777		00063	
*	C0056			-O	MESS1	00057	24050		50505	
*	C0057		ADDRESS	FO	O*0	00060	00011		00102	
*	C0060			11	LOCNUM	00061	00000		00000	
*	C0061			O	O	00062	00000		77777	
*	C0062			O	-O	00063	12752		17542	
*	C0063		MESS1	FO	2*E.L.+C.					

CHANGE CORE

CARD	LI	IO	LABEL	TA	STATEMENT	LOC	F	JKB	Y	NOTES
•	CC064		CONTENTS	-0	-0	00064	10750	50505		
•	CC065		CONTENTS	F0	0•0	00065	77777	77777		
•	CC066		WHISCONT	01	WHISCONT	00066	24050	50505		
•	CC067		KOUTCONT	F0	0•A	00067	00001	00103		
•	CC070			-0	MESS2	00070	06050	50505		
•	CC071		MESS2	F0	1•	00071	77777	00072		
•	CC072			F0	1•	00072	05050	50505		
•	CC073		PLUS1	F0	2•	00073	05050	50505		
•	CC074			F0	1•	00074	05050	50505		
•	CC075		PLUS2	F0	2•	00075	05050	50505		
•	CC076			-0	-0	00076	05050	50505		
•	CC077		LOCNUM	0	0	00077	05050	50505		
•	CC100		WHISCONT	0	0	00100	05050	50505		
•	CC101			RESERVE	1	00101	77777	77777		
						00102	00000	00000		
						00103	00000	00000		
						00104	00000	00000		

END OF LISTING

SPURT OUTPUT NO. 211

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CHANGE CORE

LABEL	LOC	LABEL	LOC	LABEL	LOC
ACQAZIM	63071	ACOELEV	63075	ACQUI	63427
ACTUALTIME	63142	ADDRESS	00057	AOSCN	63416
AESCN	63417	AHEAO	00022	AHEAO1	00025
AHEAO2	00037	ALNGOFFSET	63517	ARCOFAZIM	63524
ARCOFOEC	63526	ARCOFELEV	63522	ARCOFRA	63530
ASK	00055	ASTRODEC	63106	ASTORA	63105
AUPEREQUAT	63341	AZELOTIME	63532	AZELBXSCAN	63500
AZIM	63053	AZIMOFFSET	63512	AZIMOUT	64000
AZIMOVER	63325	AZIMAOO	63442	AZIMIN	75000
AZMTHSCAN	63501	BOOYSIZE	63462	BEGIN	00003
BLASTOFF	63146	COCON	63414	CONTENTS	00066
CONVERTIME	63135	CONVQ	00043	CORDT	63420
COSORIENT	63065	COSAZEL	63070	CAZIM	63060
CELBOOY	63113	CELCOMPGM	63424	CELEV	63061
CELTIME	63133	CHANCORE	00002	CHANGECORE	00000
CHCOR	63422	CHPAR	63431	CHANGE	63057
CRSSOFFSET	63516	OOPPOUT	66000	OOPPAO0	63444
DATANALYZE	63425	OAY	63150	OEC	63003
OECOFFSET	63515	OECOOT	63010	OECINSCAN	63505
OELTATEE	63316	OSECNOIS	63141	OUMSECTIG	63154
OYDMP	63421	ELEV	63054	ELEVOFFSET	63513
ELEVOUT	65000	ELEVAO0	63443	ELEVIN	76000
ELVTNSCAN	63502	EQUATOR	63323	ESTSHIFTED	63143
EXPNAME	63350	FIRSTELEV	63104	FIRSTTHRU	63153
FLATTENING	63337	FRAMESIZE	63101	FREQUENCY	63317
GEOENLAT	63322	GEOETLAT	63321	GMTMOU24	63145
GMTSHIFTED	63144	HOLDNOHOLD	63511	HOURMINUTE	63137
HOURREG	63151	HEIGHT	63326	IO10RAO10	66777
IO11RAD10	67776	IO12RAO10	67777	IO13RAO10	70775
IO14RAO10	70776	IO15RAO10	71776	IO16RAO10	71777
IO17RAO10	72776	IO18RAO10	72777	IO19RAO10	73776
IO1CELCOR	63000	IO1ENTPNT	63410	IO1RAOCOR	63050
IO1RAO10	63440	IO1RECR0	63210	IO1SYSENT	77576
IO1SYSNAM	77676	IO1SYSPAR	63310	IO1TIME	63130
IO20RAO10	73777	IO21RAO10	74776	IO22RAO10	74777
IO23RAO10	75776	IO24RAO10	75777	IO25RAO10	76775
IO26RAO10	76776	IO2CELCOR	63001	IO2ENTPNT	63411
IO2RAOCOR	63051	IO2RAO10	63441	IO2RECR0	63211
IO2SYSENT	77577	IO2SYSNAM	77677	IO2SYSPAR	63311
IO2TIME	63131	IO3RAO10	63776	IO4RAO10	63777
IO5RAO10	64776	IO6RAO10	64777	IO7RAO10	65776
IO8RAO10	65777	IO9RAO10	66776	INAZIMAOO	63446
INELEVAO0	63447	INTER	63413	INTERAZIM	72000
INTERCOM	63426	INTEROOPP	74000	INTERELEV	73000
INTERLCKSW	63460	INTERRANGE	76777	KOUTCONT	00070
KMPERNH	63342	KYBROLEVEL	63110	LOOP	00047
LOCNUM	00102	LONGITUDE	63320	LSPERAU	63336
MAINSWITCH	63334	MCPFILLER	71000	MCPGM	63412
MESS1	00063	MESS2	00072	MILLSTNAO0	63451
MINREG	63152	MSFREQ	63332	NMPERAU	63340
POLE	63324	PER100AZIM	63523	PERIOODEC	63525

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CHANGE CORE

LABEL	LOC	LABEL	LOC	LABEL	LOC
PERIOELEV	63521	PERIOORA	63527	PLOT	63436
PLANP	63434	PLUS1	00074	PLUS2	00077
PREVIOUSM	63461	PRLOG	63423	ROTATEAEBX	63507
ROTATERADN	63506	ROTATEROBX	63510	RA	63002
RAOFFSET	63514	RAOOT	63007	RADARMODE	63312
RAOCBXCAN	63503	RAOECOTIME	63531	RAOIOOEC	63541
RAIOMETER	63102	RAOIORA	63540	RAIUS	63006
RAIUSOOT	63011	RANGE	63052	RANGEOUT	70777
RANGAEO	63445	RANGEOOT	63062	RASCTNSCAN	63504
ROMTR	63430	ROXXX	63433	RECOROSIZE	63112
RECAZIM	67000	RECELEV	70000	RECFILE	63212
RECRO	63415	RECROSWTCH	63155	RELEASESW	63156
SAZIM	63055	SELETIME	63134	SOEC	63005
SECONOS	63140	SELEV	63056	SIERTIME	63012
SINORIENT	63064	SINAZEL	63066	SKIP	63331
SRA	63004	SRAOTIME	63136	SYNCTIMING	63542
SYSOMREG1	63452	SYSOMREG2	63453	SYSOMREG3	63454
SYSOMREG4	63455	SYSOMREG5	63456	SYSOMREG6	63457
SYSENTRIES	77600	SYSNAMES	77700	SYSTAT1	63313
SYSTAT2	63314	SYSTATO	63315	TIMECORR	63107
TIMEHOOE	63103	TIMEP	63435	TIMEHOOLO	63520
TRUERANGE	63063	TRUETIME	63132	TTSTATUS	63111
TWOSECOOP	63017	VELOFLIGHT	63335	VIZOEC1	63014
VIZOEC2	63016	VIZRA1	63013	VIZRA2	63015
WFORO	63432	WFAO	63450	WFFREQ	63333
WHISCONT	00103	YEARMONTH	63147	YRTRAN	63327
ZRTRAN	63330				

END OF LISTING

SPURT OUTPUT NO. 212

S.J.WHITE-MAR-25-64

CHANGE CORE

LABEL	LOC	LABEL	LOC	LABEL	LOC
CHANGE CORE	00000	CHANCORE	00002	BEGIN	00003
AHEAD	00022	AHEAD1	00025	AHEAD2	00037
CONVQ	00043	LOOP	00047	ASK	00055
ADDRESS	00057	MESS1	00063	CONTENTS	00066
KOUTCONT	00070	MESS2	00072	PLUS1	00074
PLUS2	00077	LOCNUM	00102	WHISCONT	00103
IOICELCOR	63000	ID2CELCOR	63001	RA	63002
DEC	63003	SRA	63004	SOEC	63005
RAIUS	63006	RADOT	63007	DECOT	63010
RAIUSDOT	63011	SIOERTIME	63012	VIZRA1	63013
VIZOEC1	63014	VIZRA2	63015	VIZOEC2	63016
TWOSECOP	63017	IO1RADCOR	63050	IO2RADCOR	63051
RANGE	63052	AZIM	63053	ELEV	63054
SAZIM	63055	SELEV	63056	CRANGE	63057
CAZIM	63060	CELEV	63061	RANGEDOT	63062
TRUERANGE	63063	SINORIENT	63064	COSORIENT	63065
SINAZEL	63066	COSAZEL	63070	ACQAZIM	63071
ACQELEV	63075	FRAMESIZE	63101	RADIOHETER	63102
TIMEMODE	63103	FIRSTELEV	63104	ASTRORA	63105
ASTRODEC	63106	TIMECORR	63107	KYBRDLEVEL	63110
TYSTATUS	63111	RECORDSIZE	63112	CELBODY	63113
IOITIME	63130	IO2TIME	63131	TRUE TIME	63132
CELTIME	63133	SCELTIME	63134	CONVERTIME	63135
SRAOTIME	63136	HOURLMINUTE	63137	SECONDS	63140
OSECONOS	63141	ACTUALTIME	63142	ESTSHIFTED	63143
GMTSHIFTED	63144	GMTMOU24	63145	BLASTOFF	63146
YEARMONTH	63147	OAY	63150	HOUREG	63151
HINREG	63152	FIRSTTHRU	63153	OUNSECITG	63154
RECROSSWICH	63155	RELEASESW	63156	IOIRECRO	63210
IO2RECRO	63211	RECFILE	63212	IOISYSPAR	63310
IO2SYSPAR	63311	RAOARMODE	63312	SYSTAT1	63313
SYSTAT2	63314	SYSTATO	63315	OELTATEE	63316
FREQUENCY	63317	LONGITUOE	63320	GEOOETLAT	63321
GEOENLAT	63322	EQUATOR	63323	POLE	63324
AZIMOVER	63325	HEIGHT	63326	YRTRAN	63327
ZRTRAN	63330	SKIP	63331	MSFREQ	63332
WFFREQ	63333	MAINSWITCH	63334	VELOFLIGHT	63335
LSPERAU	63336	FLATTENING	63337	NMPERAU	63340
AUPEREQUAT	63341	KMPERNM	63342	EXPNAME	63350
IOIENTPNT	63410	IO2ENTPNT	63411	WCPGM	63412
INTER	63413	COCON	63414	RECRO	63415
AOSCN	63416	AESCN	63417	CORCT	63420
OYOMP	63421	CHCOR	63422	PRLOG	63423
CELCOMPCH	63424	DATANALYZE	63425	INTERCOM	63426
ACQU1	63427	ROMTR	63430	CHPAR	63431
WFORO	63432	ROXXX	63433	PLANP	63434
TIMEP	63435	PLOTP	63436	IO1RAO1O	63440
IO2RADIO	63441	AZIMADD	63442	ELEVAO	63443
OOPPADO	63444	RANGEAD	63445	INAZIMADD	63446
INELEVAOD	63447	WFAO	63450	MILLSTNADO	63451
SYSOMREG1	63452	SYSOMREG2	63453	SYSOMREG3	63454

SPURT OUTPUT NO. 212

CHANGE CORE		S. J. WHITE MAR. 25 64			
LABEL	LOC	LABEL	LOC	LABEL	LOC
SYSCOMREG4	63455	SYSCOMREG5	63456	SYSCOMREG6	63457
INTERLCKSW	63460	PREVIOUS TH	63461	BODYSIZE	63462
AZELBXSCAN	63500	AZMTHSCAN	63501	ELVTNSCAN	63502
RAOCBXSCAN	63503	RASCTNSCAN	63504	OECL INSCAN	63505
ROTATERADN	63506	ROTATEAEBX	63507	ROTATERDBX	63510
HOLONHOLD	63511	AZIMOFFSET	63512	ELEV OFFSET	63513
RAOFFSET	63514	OECCOFFSET	63515	CRSSOFFSET	63516
ALNGOFFSET	63517	TIME THOLD	63520	PERIOEELEV	63521
ARCOFELEV	63522	PERIOOAZIM	63523	ARCOFAZIM	63524
PERIODDEC	63525	ARCOFOEC	63526	PERIODRA	63527
ARCOFRA	63530	RAOECOTIME	63531	AZELOTIME	63532
RAOIORA	63540	RADIODEC	63541	SYNCTIMING	63542
I03RA010	63776	ID4RAD10	63777	AZIMOUT	64000
I05RA010	64776	I06RAD10	64777	ELEVOUT	65000
ID7RA010	65776	ID8RA010	65777	OPPOUT	66000
I09RAD10	66776	I010RAD10	66777	RECELEV	67000
ID11RA010	67776	I012RAD10	67777	RANGEOUT	70000
ID13RA010	70775	I014RAD10	70776	I016RAD10	71777
MCPIILLER	71000	ID15RAD10	71776	I018RA010	72777
INTERAZIM	72000	I017RAD10	72776	I020RA010	73777
INTERELEV	73000	I019RAD10	73776	I022RA010	74777
INTEROOPP	74000	I021RAD10	74776	ID24RAD10	75777
AZIMIN	75000	ID23RAD10	75776	ID26RA010	76776
ELEVIN	76000	ID25RAD10	76775	ID2SYSENT	77577
INTERRANGE	76777	I01SYSENT	77576	ID2SYSNAM	77677
SYSENTRIES	77600	I01SYSNAM	77676		
SYSNAMES	77700				

END OF LISTING

CARDS	LI	IO	LABEL	TA	STATEMENT	LOC	F	JKB	Y	NOTES
•	C0C0		PARAMETER	PROGRAM	MATHIASSEN*3/26/65					
•	C0C1		PARAMETER	U-TAG	MSTART*ISTART	00000	00002	00004		
•	C0C2			FO	1*CHPAR	00001	10152	50627		
•	C0C3			COMMENT	CHANGE					PARAMETER PROGRAM
•	C0C4			COMMENT	DUPLY					WORKER
•	C0C5		MSTART	ENTRY		00002	61000	00000		
•	C0C6			EXIT		00003	61010	00002		
•	C0C7			COMMENT	INITIALIZATION					
•	C0C8		ISTART	ENTRY		00004	61000	00000		
•	C0C9			RJP	U(INTERCOM)	00005	65020	63426		PRINT OUT HEADING
•	C0C10			U-TAG	HEADING*0	00006	00045	00000		
•	C0C11		READPAR	CL	W(PARNAME)	00007	16030	00114		SET NAME OF PARAMETER TO +0
•	C0C12			RJP	U(INTERCOM)	00010	65020	63426		READ IN PARAMETER NAME
•	C0C13			C	ANSWER1	00011	00000	00112		
•	C0C14			ENT	A*W(PARNAME)*ANOT	00012	11530	00114		WAS A NAME READ IN
•	C0C15			JP	L(SYSCOMREG1)	00013	61010	63452		BACK TO REINT SYSTEM
•	C0C16			STR	A*Q	00014	15000	00000		
•	C0C17			ENT	A*ENDOFFTABLE	00015	11000	00221		
•	C0C18			SUB	A*TABLE	00016	21000	00133		
•	C0C19			SUB	A*1	00017	21000	00001		
•	C0C20			ENT	B5*A	00020	12570	00000		INDEX SETTING FOR SEARCH
•	C0C21		SEARCH	ENT	Y-Q*W(TABLE-5+B5)*ANOT	00021	31535	00126		DOES NAME MATCH FIRST 5 CHARACTERS
•	C0C22			JP	MATCH1+3	00022	61000	00034		YES, (TEMPORARY INSTRUCTION)
•	C0C23			COMMENT	AFTER					
•	C0C24		NEXTENTRY	ENT	B5*B5-4	00023	12505	77773		INTERCOM GETS FIXED, REPLACE ABOVE BY JP MATCH1
•	C0C25			RJP	B5*\$+1	00024	72500	00025		NO. INDEX 10 NEXT NAME IN TABLE
•	C0C26			RJP	B5*SEARCH	00025	72500	00021		HAVE WE SEARCHED THROUGH WHOLE TABLE.
•	C0C27			RJP	U(INTERCOM)	00026	65020	63426		YES. PRINT ERROR MESSAGE
•	C0C28			U-TAG	ERRORMSG*0	00027	00117	00000		
•	C0C29			JP	READPAR	00030	61000	00007		READ IN NEW PARAMETER NAME
•	C0C30		MATCH1	ENT	A*W(PARNAME+1)	00031	11030	00115		LOOK AT SECOND 5 CHARACTERS
•	C0C31			SUB	A*W(TABLE-4+B5)*AZERO	00032	21435	00127		DO THESE MATCH
•	C0C32			JP	NEXTENTRY	00033	61000	00023		NO. TRY NEXT NAME IN TABLE.
•	C0C33			MOVE	4*W(TABLE-3+B5)*W(ANSWER2)	00034	10005	00130		SET UP FOR INPUT OF CONTENTS
•	C0C34					00035	14010	00037		
•	C0C35					00036	12700	00003		
•	C0C36					00037	10037	00000		
•	C0C37					00040	14037	00127		
•	C0C38					00041	72700	00037		
•	C0C39			RJP	U(INTERCOM)	00042	65020	63426		READ IN DESIRED CONTENTS
•	C0C40			C	ANSWER2	00043	00000	00127		
•	C0C41			JP	READPAR	00044	61000	00007		READ IN NEW PARAMETER NAME
•	C0C42		HEADING	FO	1*A	00045	06050	50505		
•	C0C43			-O	\$+1	00046	77777	00047		
•	C0C44			FO	4*CHANGE PARAMETERS.	00047	10150	62314		
•	C0C45					00050	12052	50627		
•	C0C46					00051	06221	23112		

CARDS	LI	IO	LABEL	TA	STATEMENT	PARAMETER	LOC	F	JK	Y	NOTES
.	C0C73				COMMENT	TABLE					OF PARAMETERS THAT MAY BE CHAN
.	C0C74				COMMENT	EPHEMERIS					GEO
.	C0C75		TABLE		FD	2*DELTAEE	00133	11122	131C6		TIME - UNIVERSAL TIME
.	C0C76				FD	1*X28	00134	31121	2C5C5		
.	C0C77				11	DELTAEE	00135	35627	0C5C5		
.	C01C0				7777745622		00136	00011	63316		LIMIT CHECK, MARGIN. LOCATION
.	C01C1				C001C14223		00137	77777	45622		DEC -0.00005828 LO
.	C01C2				COMMENT	HAYSTACK	00140	00010	14223		WER LIMIT +.001828 UP
.	C01C3				FD	2*FREQUENCY					PER LIMIT
.	C01C4				FD	1*X14	00141	13271	22632		RADAR FREQUENCY
.	C01C5				11	FREQUENCY	00142	12231	036C5		
.	C01C6				CC0C0C0000		00143	35616	4C5C5		
.	C01C7				1161C00000		00144	00011	63317		
.	C011C				COMMENT	WESTFORD	00145	00000	0C0C0		DEC 0.814
.	C0111				FD	2*WFFREQ	00146	11610	0C0C0		DEC 10000.814
.	C0112				FD	1*X14					FREQUENCY
.	C0113				11	WFFREQ	00147	34131	32712		
.	C0114				000C0C0000		00150	26050	5C5C5		
.	C0115				1161C00000		00151	35616	4C5C5		
.	C0116				COMMENT	HAYSTACK	00152	00011	63333		
.	C0117				FD	2*LONGITUDE	00153	00000	0C0C0		DEC 0.814
.	C0120				FD	1*X20	00154	11610	0C0C0		DEC 10000.814
.	C0121				11	LONGITUDE					LONGITUDE
.	C0122				5137777777		00155	21242	31416		
.	C0123				2640C00000		00156	31321	112C5		
.	C0124				COMMENT	HAYSTACK	00157	35622	405C5		
.	C0125				FD	2*GEODETLAT	00160	00011	63320		
.	C0126				FD	1*X20	00161	51377	77777		DEC -360.820
.	C0127				11	GEODETLAT	00162	2640C	0C0C0		DEC +360.820
.	C0130				7227777777						LATITUDE
.	C0131				C550C00000		00163	14122	41112		
.	C0132				COMMENT	HAYSTACK	00164	31210	631C5		
.	C0133				FD	2*HEIGHT	00165	35622	405C5		
.	C0134				FD	1*C	00166	00011	63321		
.	C0135				11	HEIGHT	00167	72277	77777		DEC -90.820
.							00170	05500	0C0C0		DEC +90.820
.											HEIGHT
.							00171	15121	61415		
.							00172	31050	505C5		
.							00173	11050	505C5		
.							00174	00011	63326		

CAROS	LI	IO	LABEL	TA	STATEMENT	LOC	F	JKB	Y	NOTES
.	C0136				7777777323	00175	77777	77323	OEC	-300.80
.	C0137				C000072460	00176	00000	72460	OEC	30000.80
.	C0140				COMMENT EQUATORIAL					
.	C0141				FO 2*EQUATOR	00177	12263	20631		RADIUS
.	C0142				FO 1*X17	00200	24270	50505		
.	C0143				11 EQUATOR	00201	35616	70505		
.	C0144				2734C00000	00202	00011	63323		
.	C0145				3720C00000	00203	27340	00000	OEC	3000.817
.	C0146				COMMENT POLAR	00204	37200	00000	OEC	4000.817
.	C0147				FO 2*POLE					RADIUS
.	C0150				FO 1*X17	00205	25242	11205		
.	C0151				11 POLE	00206	05050	50505		
.	C0152				2734C00000	00207	35616	70505		
.	C0153				3720C00000	00210	00011	63324		
.	C0154				FO 2*AZIMOVER	00211	27340	00000	OEC	3000.817
.	C0155				FO 1*0	00212	37200	00000	OEC	4000.817
.	C0156				01 AZIMOVER	00213	06371	62224		
.	C0157				RESERVE 2	00214	33122	70505		
.	C0160	ENDOPTABLE			5757575757	00215	24050	50505		
.	C0161				NO-OP	00216	00001	63325		
						00217	00000	00000		ATTENTION CHARACTERS
						00221	57575	75757		DUMMY
						00222	12000	00000		

END OF LISTING

SPURT OUTPUT NO. 211

MATHIASSEN*3/26/65

PARAMETER

LABEL	LOC	LABEL	LOC	LABEL	LOC
A\$\$\$\$1111	00037	ACQAZIM	63071	ACQLEV	63075
ACQOI	63427	ACTUAL TIME	63142	ADSCN	63416
AESCN	63417	ALNGOFFSET	63517	ANSWER1	00112
ANSWER2	00127	ARCOFAZIM	63524	ARCOFDEC	63526
ARCOFELEV	63522	ARCOFRA	63530	ASTRODEC	63106
ASTRORA	63105	AUPEREQUAT	63341	AZELOTIME	63532
AZELBXSCAN	63500	AZIM	63053	AZIMOFFSET	63512
AZIMOUT	64000	AZIMOVER	63325	AZIMADD	63442
AZIMIN	75000	AZMTHSCAN	63501	BODYSIZE	63462
BLASTOFF	63146	COCON	63414	CONVERTIME	63135
CGRDT	63420	COSORTIENT	63065	COSAZEL	63070
CAZIM	63060	CELBODY	63113	CELCOMPGM	63424
CELEV	63061	CELTIME	63133	CHCDR	63422
CHPAR	63431	CRANGE	63057	CRSSOFFSET	63516
DCPPDUT	66000	DOPPAD0	63444	DATANALYZE	63425
CAY	63150	DEC	63003	DELTATEE	63316
DECOOT	63010	DECLINSCAN	63505	DYDMP	63421
DSECONDS	63141	DUMSECTTG	63154	ELEVOUT	65000
ELEV	63054	ELEVDFSET	63513	ELVTNSCAN	63502
ELEVADD	63443	ELEVIN	76000	ERRORMSG	00117
ENDGFTABLE	00221	EQUATOR	63323	FIRSTELEV	63104
ESTSHIFTED	63143	EXPNAME	63350	FRAME SIZE	63101
FIRSTTHRU	63153	FLATTENING	63337	GEODETLAT	63321
FREQUENCY	63317	GEODEVLAT	63322	HOLDNOLHOLD	63511
GMTWCD024	63145	GMTSHIFTED	63144	HEADING	00045
HOURMINUTE	63137	HOURREG	63151	ID11RADIO	67776
HEIGHT	63326	ID10RADIO	66777	ID14RADIO	70776
ID12RADIO	67777	ID13RADIO	70775	ID17RADIO	72776
ID15RADIO	71776	ID16RADIO	71777	ID1CELCUR	63000
ID18RADIO	72777	ID19RADIO	73776	ID1RADIO	63440
ID1ENTPNT	63410	ID1RADCDR	63050	ID1SYSNAM	77676
ID1RECDP	63210	ID1SYSENT	77576	ID20RADIO	73777
ID1SYSPAR	63310	ID1TIME	63130	ID23RADIO	75776
ID21RADIO	74776	ID22RADIO	74777	ID26RADIO	76776
ID24RADIO	75777	ID25RADIO	76775	ID2RADCUR	63051
ID2CELCUR	63001	ID2ENTPNT	63411	ID2SYSENT	77577
ID2RADIC	63441	ID2RECDR	63211	ID2TIME	63131
ID2SYSNAM	77677	ID2SYSPAR	63311	ID5RADIO	64776
ID3RADIO	63776	ID4RADIO	63777	ID8RADIO	65777
ID6RADIO	64777	ID7RADIO	65776	INFEVADD	63447
ID9RADIO	66776	INAZIMADD	63446	INTERCDM	63426
INTER	63413	INTERAZIM	72000	INTERLCKSW	63460
INTEROPP	74000	INTERELEV	73000	KMPERNM	63342
INTERRANGE	76777	ISTART	00004	LSPERAU	63336
KYDRCLEVEL	63110	LONGITUDE	63320	MCPFILLER	71000
MAINSWITCH	63334	MATCHI	00031	MINREG	63152
MCPGM	63412	MILLSTNADD	63451	NEXTENTRY	00023
MSREQ	63332	MSTART	00002	PARAMETER	00000
NMPERAU	63340	POLE	63324	PERIODDEC	63525
PARNAME	00114	PERIODAZIM	63523	PLGIP	63436
PERICDELEV	63521	PERIODRA	63527		

SPURT OUTPUT NO. 211

MATHIASSEN*3/26/65

PARAMETER

LABEL	LOC	LABEL	LOC	LABEL	LOC
PLAMP	63434	PREVIJUSTM	63461	PRLOG	63423
RCIATEAERX	63507	ROTATERADN	63506	ROTATERDBX	63510
RA	63002	RADFFSET	63514	RADOT	63007
RACARMODE	63312	RADCRXSCAN	63503	RADECOTIME	63531
RACIUDEC	63541	RADIOMETER	63102	RADIORA	63540
RADIUS	63006	RADIOSOOT	63011	RANGE	63052
RANGEDOT	70777	RANGEADD	63445	RANGEDOT	63062
RASCINSCAN	63504	RDMT	63430	RDOXX	63433
READPAR	70007	RECORDSIZE	63112	RECAZIM	67000
RECELEV	70000	RECFILE	63212	RECRD	63415
RECROSWTCH	63155	RELEASESM	63156	SAZIM	63055
SELTIME	63134	SDEC	63005	SEARCH	00021
SECONDS	63140	SELEV	63056	SIDERTIME	63012
SINORIENT	63064	SINAZEL	63066	SKIP	63331
SRA	63004	SRADTIME	63136	SYNCTIMING	63542
SYSOMREG1	63452	SYSOMREG2	63453	SYSOMREG3	63454
SYSOMREG4	63455	SYSOMREG5	63456	SYSOMREG6	63457
SYSENTRIES	77600	SYSNAMES	77700	SYSTATT	63313
SYSTAT2	63314	SYSTATD	63315	TABLE	00133
TIMECORR	63107	TIMEMODE	63103	TIMEP	63435
TIMETHOLD	63520	TRUERANGE	63063	TRUETIME	63132
TTYSTATUS	63111	TWOSECDOOP	63017	VELOFLIGHT	63335
VIZDECL	63014	VIZDEC2	63016	VIZRAL	63013
VIZRA2	63015	WFDOD	63432	WFAOD	63450
WFFREQ	63333	YEARMONTH	63147	YRTRAN	63327
ZRTRAN	63330				

END OF LISTING

PARAMETER		MATHIASSEN#3/26/65		
LABEL	LOC	LABEL	LOC	LABEL	LOC
PARAMETER	COG00	MSTART	00002	ISTART	00004
READPAR	DOCU7	SEARCH	00021	NEXTENTRY	00023
MATCH1	CO031	A\$\$\$1111	00037	HEADING	00045
ANSWER1	CO112	PARNAME	00114	ERRORMSG	00117
ANSWER2	CO127	TABLE	00133	ENDOFFTABLE	00221
ID1CELCCR	63000	ID2CELCCR	63001	RA	63002
DEC	63003	SRA	63004	SDEC	63005
RADIUS	63006	RADDT	63007	DECDOT	63010
RADIUSDOT	63011	SIDERTIME	63012	V1ZRA1	63013
V1ZDEC1	63014	V1ZRA2	63015	V1ZDEC2	63016
TWOSECDPP	63017	ID1RADCCR	63050	ID2RADCCR	63051
RANGE	63052	AZIM	63053	ELEV	63054
SAZIM	63055	SELEV	63056	CRANGF	63057
CAZIM	63060	CELEV	63061	RANGEDOT	63062
TRUERANGE	63063	SINORIENT	63064	COSORTENT	63065
SINAZEL	63066	COSAZEL	63070	ACQAZIM	63071
ACQLEV	63075	FRAMESIZE	63101	RADIUMETER	63102
TIMEMODE	63103	FIRSTELEV	63104	ASTRORA	63105
ASTRODEC	63106	TIMECORR	63107	KYBROLEVEL	63110
TTYSTATUS	63111	RECORDSIZE	63112	CELBODY	63113
IC1TIME	63130	ID2TIME	63131	TRUETIME	63132
CELTIME	63133	SCELTIME	63134	CONVERTIME	63135
SRADTIME	63136	HOURLMINUTE	63137	SECONDS	63140
DSFSECONDS	63141	ACTUALTIME	63142	ESTSHIFTED	63143
GMTSHIFTED	63144	GMTMODU24	63145	BLASTOFF	63146
YEARMONTH	63147	DAY	63150	HOUREG	63151
MINREG	63152	FIRSTTHRU	63153	DUMSECTIG	63154
REGRD SWITCH	63155	RELEASESW	63156	ID1REGRD	63210
ID2REGRD	63211	RECFILE	63212	ID1SYSPAR	63310
ID2SYSPAR	63311	RADARMODE	63312	SYSTAT1	63313
SYSTAT2	63314	SYSTAT0	63315	DELTATEE	63316
FREQUENCY	63317	LONGITUDE	63320	GEODETLAT	63321
GEOCENLAT	63322	EQUATOR	63323	POLE	63324
AZIMDVER	63325	HEIGHT	63326	YRTRAN	63327
ZRTRAN	63330	SKIP	63331	MSREQ	63332
WFEREQ	63333	MAINSWITCH	63334	VELOFLIGHT	63335
LSPERAU	63336	FLATTENING	63337	NMPERAU	63340
AUPEREQUAT	63341	KMPERVM	63342	EXPNAME	63350
ID1ENTPNT	63410	ID2ENTPNT	63411	MCPGM	63412
INTER	63413	COCON	63414	RECRD	63415
ADSCN	63416	AESCN	63417	CORCT	63420
DYDMP	63421	CHCOR	63422	PRLOG	63423
CELCOMPGM	63424	DATANALYZE	63425	INTERCOM	63426
ACQUI	63427	ROMTR	63430	CHPAR	63431
WFORC	63432	RDXXX	63433	PLANP	63434
TIMEP	63435	PLOTP	63436	ID1RADIU	63440
ID2RADIO	63441	AZIMADD	63442	ELEVAOD	63443
DGPPADD	63444	RANGEADD	63445	INAZIMADD	63446
INLEVAOD	63447	WFADD	63450	MILLSTNADD	63451
SYSCOMREG1	63452	SYSCOMREG2	63453	SYSCOMREG3	63454
SYSCOMREG4	63455	SYSCOMREG5	63456	SYSCOMREG6	63457

PARAMETER

MATHIASSEN*3/26/65

LABEL	LOC	LABEL	LOC	LABEL	LOC
INTERLCKSW	63460	PREVIOUSTM	63461	BODYSIZE	63462
AZELBXSCAN	63500	AZMTXSCAN	63501	ELVNSCAN	63502
RADCXSCAN	63503	RASCTNSCAN	63504	DECLINSCAN	63505
RCTATERACN	63506	ROTATEAERX	63507	ROTATERUBX	63510
HCLONHOLD	63511	AZIMOFFSET	63512	ELEVOFFSET	63513
RAOFFSET	63514	DECOFFSET	63515	CRSSOFFSET	63516
ALNGOFFSET	63517	TIMETHOLD	63520	PERIODELEV	63521
ARCOFELEV	63522	PERIODAZIM	63523	ARCOFAZIM	63524
PERIODDEC	63525	ARCOFDEC	63526	PERIODRA	63527
ARCOFRA	63530	RADECJTIME	63531	AZELUTIME	63532
RADIORA	63540	RADIODEC	63541	SYNCTIMING	63542
ID3RADID	63776	ID4RADID	63777	AZIMDUT	64000
ID5RADID	64776	ID6RADID	64777	ELEVOUT	65000
IC7RADID	65776	ID8RADID	65777	ODPPDUT	66000
IC9RADID	66776	ID10RADID	66777	RECAZIM	67000
IC11RADID	67776	ID12RADID	67777	RECELEV	70000
IC13RADID	70775	ID14RADID	70776	RANGEDUT	70777
MCPFILLER	71000	ID15RADID	71776	ID16RADID	71777
INTERAZIM	72000	ID17RADID	72776	ID18RADID	72777
INTERELEV	73000	ID19RADID	73776	ID20RADID	73777
INTERDDPP	74000	ID21RADID	74776	ID22RADID	74777
AZIMIN	75000	ID23RADID	75776	ID24RADID	75777
ELEVIN	76000	ID25RADID	76775	ID26RADID	76776
INTERRANGE	76777	ID1SYSENT	77576	ID2SYSENT	77577
SYSENTRIES	77600	ID1SYSNAM	77676	ID2SYSNAM	77677
SYSNAMES	77700				

END OF LISTING

CARDS	L1	IO	LABEL	TA	STATEMENT	LOC	F	JKB	Y	NOTES
.	00000	OYOMPPGM		PROGRAM	S.J.WHITE*06/23/64					
.	00001	OYOMPPGM		U-TAG	OYOWORK*OY01NIT					
.	00002			FO	I*OYOMP	00000	00002	00164		
.	00003	OYOWORK		ENTRY		00001	11361	12225		
.	00004			CL	B5*	00002	61000	00000		
.	00005			CL	B6*	00003	12500	00000		
.	00006			CL	B7*	00004	12600	00000		
.	00007			ENT	A*W(STACK+250)AZERO	00005	12700	00000		
.	00010			JP	GLOG	00006	11430	00163		
.	00011			RPT	170*AOV	00007	61000	00067		
.	00012			STR	B0*W(WOROBLOCK)	00010	70100	00021		
.	00013			STR	Q*W(WOROBLOCK)	00011	16030	00105		
.	00014	AGAIN		ENT	A*2	00012	14030	00105		
.	00015			STR	A*W(TWOCT)	00013	11000	00002		
						00014	15030	00126		CLEAR WOROBLOCK
.	00016			ENT	A*L(AOORBUF+B5)*AZERO					SET COUNT TO PROCESS 2 HALFS W
						00015	11415	00351		ORO
										ENT A W/AOORESS TO FINO CONTEN
										TS
.	00017			JP	CONTON	00016	61000	00026		
.	00020			ENT	A*W(AOORBUF+B5)	00017	11035	00351		
.	00021			SUB	A*777770000*AZERO	00020	21430	00420		
.	00022			JP	CONTON	00021	61000	00026		
.	00023			ENT	B6*B6+2	00022	12606	00002		
.	00024			BSK	B5*7	00023	71500	00007		
.	00025			JP	AGAIN	00024	61000	00013		
.	00026			JP	FILLBUFFER-2	00025	61000	00045		
.	00027	CONTON		ENT	A*L(AOORBUF+B5)	00026	11015	00351		
.	00030			STR	A*L(\$+)	00027	15010	00030		
.	00031			ENT	Q*W(0)	00030	10030	00000		
.	00032	MOREQ		CL	A*	00031	11000	00000		
.	00033			LSH	AQ*3	00032	07000	00003		
.	00034			AOO	A*60	00033	20000	00060		
.	00035			STR	A*W(SAVEA)	00034	15030	00127		
.	00036			ENT	A*W(WOROBLOCK+1+B6)	00035	11036	00106		
.	00037			LSH	A*6	00036	06000	00006		
.	00040			AOO	A*W(SAVEA)	00037	20030	00127		
.	00041			STR	A*W(WOROBLOCK+1+B6)	00040	15036	00106		
.	00042			BSK	B7*4	00041	71700	00004		
.	00043			JP	MOREQ	00042	61000	00031		
.	00044			BSK	B6*150	00043	71600	00017		
.	00045			JP	MOREWROS	00044	61000	00101		
.	00046			CL	B5*	00045	12500	00000		
.	00047			ENT	B6*	00046	12600	00001		
.	00050	FILLBUFFER		ENT	A*W(WOROBLOCK-1+B6)	00047	11036	00104		
										STORE WROS CONVERTED FROM OCT
										TO
.	00051			STR	A*W(STACK+B5)	00050	15035	00132		
.	00052			CL	A*	00051	11000	00000		
.	00053			ENT	Q*W(WOROBLOCK+B6)	00052	10036	00105		
.	00054			LSH	AQ*6	00053	07000	00006		
.	00055			STR	A*W(STACK+1+B5)	00054	15035	00133		
.	00056			LSH	AQ*300	00055	07000	00036		
.	00057			STR	A*W(STACK+2+B5)	00056	15035	00134		
.	00060			ENT	B5*B5+3	00057	12505	00003		
.	00061			ENT	B6*B6+1	00060	12606	00001		

CAROS	L1	IO	LABEL	TA	STATEMENT	LOC	F	JKB	Y	NOTES
.	C0062			BSK	B6*160	00061	71600	00020		
.	C0063			JP	FILLBUFFER	00062	61000	00047		
.	C0064		FILLBUFFER	ENT	A*W1WROBLOCK+16D)	00063	11030	00125		LAST WORO 125TH WORO1
.	C0065			STR	A*W1STACK+B51	00064	15035	00132		
.	C0066			PUT	L1STKBUFF)*L1\$+2)	00065	10010	00131		
.	C0067		GOLOG	RJP	UIPRLOG1	00066	14010	00070		
.	C0070			260	O	00067	65020	63423		
.	C0071			-1	O	00070	00032	00000		
.	C0072			JP	CHANACTV	00071	77776	00000		
.	C0073			RPT	260*AOV	00072	61000	00076		
.	C0074			CL	W1STACK)	00073	70100	00032		
.	C0075		CHANACTV	EXIT		00074	16030	00132		
.	C0076			PUT	W1MARKBUFF1*W1STACK+2501	00075	61010	00002		
.	C0077			EXIT		00076	10030	00130		
.	C0100		MOREWROS	RPL	Y-1*W1TWOCT)*AZERO	00077	14030	00163		
.	C0101			JP	MOREQ	00100	61010	00002		HAS BOTH HALFS WORO BEEN PROCE
.	C0102			ENT	B5*B5+1	00101	37430	00126		SSEO
.	C0103			JP	AGAIN	00102	61000	00031		NO
.	C0104		WOROBLOCK	RESERVE	170	00103	12505	00001		YES
.	C0105		TWOCT	RESERVE	1	00104	61000	00013		
.	C0106		SAVEA	RESERVE	1	00105	00000	00000		
.	C0107		MARKBUFF	3535350000		00126	00000	00000		
.	C0110		STRBUFF	U-TAG	STACK+250*STACK	00127	00000	00000		
.	C0111		STACK	RESERVE	260	00130	35353	50000		
.	C0112		OYONIT	ENTRY		00131	00163	00132		
.	C0113		SETREG	CL	B5*	00132	00000	00000		
.	C0114			CL	B6*	00133	61000	00000		
.	C0115			ENT	A*W1KOUTPUTSW)*ANOT	00164	12500	00000		
.	C0116			JP	NOOUT	00165	12600	00000		
.	C0117			RJP	UIINTERCOM1	00166	11530	00362		
.	C0120			U-TAG	STOP*YORN	00170	61000	00273		NO
.	C0121			ENT	A*UIANS)	00171	65020	63426		YES
.	C0122			SUB	A*36000*AZERO	00172	00313	00315		STOP YES OR NO
.	C0123			JP	CONT1	00173	11020	00347		
.	C0124			STR	BO*UIOYOMP1	00174	21400	36000		NO
.	C0125			STR	BO*W1KOUTPUTSW)	00175	61000	00201		YES
.	C0126			EXIT		00176	16020	63421		
.	C0127		CONT1	ENT	A*-O	00177	60300	00362		EXIT
.	C0130			STR	A*W1ANS)	00200	61010	00164		
.	C0131			RJP	UIINTERCOM1	00201	11040	77777		SET ANS TO -O
.	C0132			U-TAG	CHANGCOL*WHCOL	00202	15030	00347		
.	C0133			ENT	A*UIANS)*AZERO	00203	65020	63426		
.	C0134			JP	CONT2	00204	00317	00321		
.	C0135			RJP	UIINTERCOM)	00205	11420	00347		
.	C0136			U-TAG	ASK*ADDRESS	00206	61000	00216		YES
.	C0137			ENT	A*W1LOCNUM1	00207	65020	63426		NO
.	C0140			ENT	B5*L1ANS)	00210	00325	00327		PICK UP NEW O/P ADDRESS
.	C0141			STR	A*W1A00RBUF+B5)	00211	11030	00350		SET B TO NO-O/P A00R TO BE CHA
.	C0142			BSK	B6*7	00212	12510	00347		NGEO
.	C0141			STR	A*W1A00RBUF+B5)	00213	15035	00351		STORE NEW O/P A00R.
.	C0142			BSK	B6*7	00214	71600	00007		

CAROS	LI	IO	LABEL	TA	STATEMENT	LOC	F	JKB	Y	NOTES
.	00143			JP	CONT1	00215	61000	00201		
.	00144		CONT2	CL	B5*	00216	12500	00000		
.	00145			CL	B6*	00217	12600	00000		
.	00146			CL	B7*	00220	12700	00000		
.	00147			ENT	A*WIPROG1	00221	11030	00363		
.	00150			STR	A*W(PRINTAREA1	00222	15030	00365		FILL PRINTOUT BUFFER
.	00151		LOOP2	CL	A*	00223	11000	00000		
.	00152			STR	A*W(PRINTAREA*1+B61	00224	15036	00366		
.	00153			ENT	A*L(AOORBUF+B51*AZERO	00225	11415	00351		IS L(AOORBUF1=0
.	00154			JP	GOF0	00226	61000	00236		NO
.	00155		MAYBEO	ENT	A*W(AOORBUF+B51	00227	11035	00351		YES
.	00156			SUB	A*7777700000*AZERO	00230	21430	00420		REALY 0
.	00157			JP	GOF0	00231	61000	00236		NO
.	00160			ENT	B6*B6+3	00232	12606	00003		
.	00161			BSK	B5*7	00233	71500	00007		
.	00162			JP	LOOP2+2	00234	61000	00225		
.	00163			JP	PUTOUT	00235	61000	00256		
.	00164		GOF0	ENT	Q*L(AOORBUF+B51	00236	10015	00351		CONVERT AOORBUF TO FO
.	00165			LSH	Q*150	00237	05000	00017		
.	00166			CL	A*	00240	11000	00000		
.	00167		LOOP1	LSH	A*3	00241	06000	00003		
.	00170			LSH	AQ*3	00242	07000	00003		
.	00171			A00	A*60	00243	20000	00060		
.	00172			BSK	B7*4	00244	71700	00004		
.	00173			JP	LOOP1	00245	61000	00241		
.	00174			ENT	Q*A	00246	10070	00000		
.	00175			CL	A*	00247	11000	00000		
.	00176			LSH	AQ*180	00250	07000	00022		
.	00177			STR	A*W(PRINTAREA*2+B61	00251	15036	00367		SET UP HEADING PRINT OUT AREA
.	00200			STR	Q*W(PRINTAREA*3+B61	00252	14036	00370		
.	00201			ENT	B6*B6+3	00253	12606	00003		
.	00202			BSK	B5*7	00254	71500	00007		
.	00203			JP	LOOP2	00255	61000	00223		
.	00204		PUTOUT	PUT	L(PRINTOUT1*L(\$+21	00256	10010	00364		
.	00205			RJP	U(PRLOG1	00257	14010	00261		
.	00206			260	0	00260	65020	63423		
.	00207			-1	0	00261	00032	00000		
.	00210			JP	PUTOUT	00262	77776	00000		
.	00211			PUT	1*W(KOUTPUTSW1	00263	61000	00256		
.	00212			PUT	OYOWORK*U(OYOMP1	00264	10000	00001		
.	00213			RPT	260*AOV	00265	14030	00362		
.	00214			CL	W(STACK1	00266	10000	00002		
.	00215			EXIT		00267	14020	63421		
.	00216		NOOUT	ENT	A*7777700000	00270	70100	00032		
.	00217			RPT	BO*AOV	00271	16030	00132		
.	00220			STR	A*W(AOORBUF1	00272	61010	00164		
.	00221			RPT	260*AOV	00273	11030	00420		STR ALL 1 U(AOORBUF1 BUFFER
.	00222			STR	BO*W(PRINTAREA1	00274	70100	00010		
.	00223		WHOS10	ENT	A*-0	00275	15030	00351		
.						00276	70100	00032		
.						00277	16030	00365		CLEAR PRINTAREA
.						00300	11040	77777		

CAROS	L1	IO	LABEL	TA	STATEMENT	LOC	F	JKB	Y	NOTES
.	00224			STR	A*(LOCNUM1	00301	15030	00350		SET W(LOCNUM)=-0
.	00225			RJP	U(INTERCOM1	00302	65020	63426		
.	00226			U-TAG	ASK*ADDRESS	00303	00325	00327		
.	00227			ENT	A*(LOCNUM1*AZERO	00304	11420	00350		
.	00230			JP	CONT2	00305	61000	00216		YES
.	00231			ENT	A*(LOCNUM)	00306	11030	00350		NO
.	00232			STR	A*(A00RBUF+861	00307	15036	00351		
.	00233			BSK	B6*7	00310	71600	00007		
.	00234			JP	WHOSIO	00311	61000	00300		
.	00235			JP	CONT2	00312	61000	00216		YES
.	00236		STOP	F0	0*A	00313	06050	50505		
.	00237			-0	MESS1	00314	77777	00333		
.	00240		YORN	F0	1*LL	00315	21610	50505		
.	00241			1	ANS	00316	00001	00347		
.	00242		CHANCOL	F0	0*A	00317	06050	50505		
.	00243			-0	MESS2	00320	77777	00336		
.	00244		WHCOL	F0	0*0	00321	24050	50505		
.	00245			11	ANS	00322	00011	00347		
.	00246			0	0	00323	00000	00000		
.	00247			0	7	00324	00000	00007		
.	00250		ASK	F0	0*A	00325	06050	50505		
.	00251			-0	MESS3	00326	77777	00343		
.	00252		ADDRESS	F0	0*0	00327	24050	50505		
.	00253			11	LOCNUM	00330	00011	00350		
.	00254			0	0	00331	00000	00000		
.	00255			0	77777	00332	00000	77777		
.	00256		MESS1	F0	0*STOP (Y-N)	00333	30312	42505		
.				-0	-0	00334	51364	12340		
.	00257			-0	-0	00335	77777	77777		
.	00260		MESS2	F0	0*CHANGE O/P (0-7)	00336	10150	62314		
.				-0	-0	00337	12052	47425		
.	00261			-0	-0	00340	05512	44167		
.	00262		MESS3	F0	0*ENTER LOCATION	00341	40050	50505		YES
.				-0	-0	00342	77777	77777		
.	00263			-0	-0	00343	12233	11227		
.	00264		ANS	RESERVE	1	00344	05212	41006		
.	00265		LOCNUM	RESERVE	1	00345	31162	42305		
.	00266		ADORBUF	RESERVE	80	00346	77777	77777		
.	00267			-0	-0	00347	00000	00000		
.	00270		KOUTPUTSW	RESERVE	1	00350	00000	00000		
.	00271		PROG	F0	1*PGM	00351	00000	00000		
.	00272		PRINTOUT	U-TAG	PRINTAREA+250*PRINTAREA	00362	00000	00000		
.	00273		PRINTAREA	RESERVE	260	00363	25142	20505		
.	00274			RESERVE	1	00364	00416	00365		
.						00365	00000	00000		
.						00417	00000	00000		
.						00420	77777	00000		

ENO OF LISTING

SPURT OUTPUT NO. 211

S-J-WHITE*06/23/64

OYDMPPGM

LABEL	LOC	LABEL	LOC	LABEL	LOC
AAAAAAAAAAAA		ACQAZIM	63071	ACQEVLEV	63075
ACQUT	00420	ACTUAL TIME	63142	AORBUF	00351
AQRESS	63427	AOSCN	63416	AESCN	63417
AGAIN	00013	ALNGOFFSET	63517	ANS	00347
ARCOFAZIM	63524	ARCOFOEC	63526	ARCOFELEV	63522
ARCOFRA	63530	ASK	00325	ASTROEC	63106
ASTRORA	63105	AUPEREQUAT	63341	AZELOTIME	63532
AZELBXSCAN	63500	AZIM	63053	AZIMOFFSET	63512
AZIMOUT	64000	AZIMOVER	63325	AZIMAOO	63442
AZIMIN	75000	AZMTHSCAN	63501	BOOYSIZE	63462
BLASTOFF	63146	COCON	63414	CDNTON	00026
CONTI	00201	CON2	00216	CONVERTIME	63135
CORCT	63420	COSORIENT	63065	COSAZEL	63070
CAZIM	63060	CELBOOY	63113	CELORPGM	63424
CELEV	63061	CELTIME	63133	CHANACTV	00076
CHANCAL	00317	CHCOR	63422	CHPAR	63431
CRANGE	63057	CRSSOFFSET	63516	OOPPOUT	66000
OOPPAO	63444	OATANALYZE	63425	OAY	63150
OEC	63003	OECOFFSET	63515	OECOOT	63010
OECILNSCAN	63505	OELTATEE	63316	OSECNOS	63141
OUNSFCTTG	63154	OYGINIT	00164	OYOMP	63421
OYOMPPGM	00000	OYOWORK	00002	ELEV	63054
ELEVOFFSET	63513	ELEVOUT	65000	ELEVAO	63443
ELEVIN	76000	ELVTNSCAN	63502	EQUATOR	63323
ESTSHIFTEO	63143	EXPNAME	63350	FILLBUFFER	00047
FILLBUFFJR	00063	FIRSTELEV	63104	FIRSTHRU	63153
FLATTENING	63337	FRAMESIZE	63101	FREQUENCY	63317
GOF	00236	GLOG	00067	GEOCNLAT	63322
GEOETLAT	63321	GMTMOO24	63145	GMTSHIFTEO	63144
HOLONHOL	63511	HOURLINUTE	63137	HOURREG	63151
HEIGHT	63326	I010RAO10	66777	I011RAO10	67776
I012RAO10	67777	I013RAO10	70775	I014RAO10	70776
I015RAO10	71776	I018RAO10	71777	I017RAO10	72776
I018RAO10	72777	I019RAO10	73776	I01CELCOR	63000
I01ENTPNT	63410	I01RAOCOR	63050	I01RAO10	63440
I01RECR	63210	I01SYSENT	77576	I01SYSNAM	77676
I01SYSPAR	63310	I01TIME	63130	I020RAO10	73777
I021RAO10	74776	I022RAO10	74777	I023RAO10	75776
I024RAO10	75777	I025RAO10	76775	I026RAO10	76776
I02CELCOR	63001	I02ENTPNT	63411	I02RAOCOR	63051
I02RAO10	63441	I02RECR	63211	I02SYSENT	77577
I02SYSNAM	77677	I02SYSPAR	63311	I02TIME	63131
I03RAO10	63776	I04RAO10	63777	I05RAO10	64776
I06RAO10	64777	I07RAO10	65776	I08RAO10	65777
I09RAO10	66776	INAZIMAOO	63446	INELEVAO	63447
INTER	63413	INTERAZIM	72000	INTERCOM	63426
INTERODPP	74000	INTERELEV	73000	INTERLCKSM	63460
INTERRANGE	76777	KOUTPUTSW	00362	KMPERNM	63342
KYBROLEVEL	63110	LOOP1	00241	LOOP2	00223
LOCNUM	00350	LONGITUDE	63320	LSPERAU	63336
MOREQ	00031	MOREWROS	00101	MAINSWITCH	63334

SPURT OUTPUT NO. 211

S. J. WHITE-06/23/64

DYDMPPCM

LABEL	LOC	LABEL	LOC	LABEL	LOC
MARKBUFF	00130	MAYBEO	00227	MCPFILLER	71000
MCPGM	63412	MESS1	00333	MESS2	00336
MESS3	00343	MILLSTNADO	63451	MINREG	63152
MSPREQ	63332	NOOUT	00273	NMPERAU	63340
POLE	63324	PERIOOAZIM	63523	PERIOODEC	63525
PERIODELEV	63521	PERIOORA	63527	PLOTP	63436
PLANP	63434	PROG	00363	PREVIOUSYM	63461
PRINTOUT	00364	PRINTAREA	00365	PRLOG	63423
PUTOUT	00256	ROTATEAEBX	63507	ROTATERADN	63506
ROTATERDBX	63510	RA	63002	RAOFFSET	63514
RADOT	63007	RAOARMODE	63312	RADCBXSCAN	63503
RADECOTIME	63531	RADIODEC	63541	RAOIMETER	63102
RADIORA	63540	RADIUS	63006	RADIUSDOT	63011
RANGE	63052	RANGEOUT	70777	RANGEADD	63445
RANGEDOT	63062	RASCTNSCAN	63504	RDMT	63430
RDXXX	63433	RECOROSIZE	63112	RECAZIM	67000
RECELEV	70000	RECFILE	63212	RECRO	63415
RECRDSWICH	63155	RELEASESW	63156	SAVEA	00127
SAZIM	63055	SCELTIME	63134	SDEC	63005
SECONDS	63140	SELEV	63056	SETREG	00165
SIDERTIME	63012	SINORIENT	63064	SINAZEL	63066
SKIP	63331	SRA	63004	SRADTIME	63136
STOP	00313	STACK	00132	STKBUFF	00131
SYNCTIMING	63542	SYSOMREG1	63452	SYSOMREG2	63453
SYSOMREG3	63454	SYSOMREG4	63455	SYSOMREG5	63456
SYSOMREG6	63457	SYSENTRIES	77600	SYSNAMES	77700
SYSTAT1	63313	SYSTAT2	63314	SYSTATD	63315
TIMECORR	63107	TIMEMODE	63103	TIMEP	63435
TIMEHOLO	63520	TRUERANGE	63063	TRUETIME	63132
TTYSTATUS	63111	TWOCT	00126	TWOSECDOP	63017
VELOFLIGHT	63335	VIZOEC1	63014	VIZOEC2	63016
VIZRA1	63013	VIZRA2	63015	WORDBLOCK	00105
WFORO	63432	WFADO	63450	WFFREQ	63333
WHOSIO	00300	WHCOL	00321	YORN	00315
YEARMONTH	63147	YRTRAN	63327	ZRTRAN	63330

END OF LISTING

SPURT OUTPUT NO. 212

S.J.WHITE*06/23/64

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OYOMPPGM

LABEL	LOC	LABEL	LOC	LABEL	LOC
OYOMPPGM	00000	OYOWORK	00002	AGAIN	00013
CONTON	00026	MOREQ	00031	FILLBUFFER	00047
FILLBUFFJR	00063	GOLG	00067	CHANACTV	00076
MOREWROS	00101	WORORLOCK	00105	TWOCT	00126
SAVEA	00127	MARKBUFF	00130	STRBUFF	00131
STACK	00132	OYOINIT	00164	SETREG	00165
CONT1	00201	CONT2	00216	LOOP2	00223
MAYBEO	00227	GOFO	00236	LOOP1	00241
PUTOUT	00256	NOOUT	00273	WHOSIO	00300
STOP	00313	YORN	00315	CHANCOL	00317
WHCOL	00321	ASK	00325	ADDRESS	00327
MESS1	00333	MESS2	00336	MESS3	00343
ANS	00347	LOCNUM	00350	AORRBUF	00351
KOUTPUTSW	00362	PROG	00363	PRINTOUT	00364
PRINTAREA	00365	AS\$S\$1111	00420	IOICELCOR	63000
IO2CELCOR	63001	RA	63002	OEC	63003
SRA	63004	SOEC	63005	RAOIUS	63006
RAOOT	63007	OECOOT	63010	RAOIUSOOT	63011
SIOERTIME	63012	VIZRA1	63013	VIZOEC1	63014
VIZRA2	63015	VIZOEC2	63016	TWOSEC00P	63017
IO1RAOCOR	63050	IO2RAOCOR	63051	RANGE	63052
AZIM	63053	ELEV	63054	SAZIM	63055
SELEV	63056	CRANGE	63057	CAZIM	63060
CELEV	63061	RANGEOOT	63062	TRUERANGE	63063
SINORIENT	63064	COSORIENT	63065	SINAZEL	63066
COSAZEL	63070	ACQAZIM	63071	ACQELEV	63075
FRAMESIZE	63101	RAOIOMETER	63102	TIMEMOEE	63103
FIRSTELEV	63104	ASTRORA	63105	ASTRODEC	63106
TIMECORR	63107	KYBROLEVEL	63110	TTYSTATUS	63111
RECOROSIZE	63112	CELBOOY	63113	IOITIME	63130
IO2TIME	63131	TRUETIME	63132	CELTME	63133
SCELTME	63134	CONVERTIME	63135	SRAOTIME	63136
HOURLMINUTE	63137	SECONOS	63140	OSECONOS	63141
ACTUALTIME	63142	ESTSHIFTEO	63143	GMTSHIFTEO	63144
GMTMOOU24	63145	BLASTOFF	63146	YEARMONTH	63147
DAY	63150	HOURREG	63151	MINREG	63152
FIRSTTHRU	63153	OUMSECTTG	63154	RECROSSWICH	63155
RELEASESW	63156	IO1RECR0	63210	IO2RECR0	63211
RECFILE	63212	IO1SYSPAR	63310	IO2SYSPAR	63311
RAOARMODE	63312	SYSTAT1	63313	SYSTAT2	63314
SYSTATO	63315	DELTATEE	63316	FREQUENCY	63317
LONGITUDE	63320	GEODETLAT	63321	GEOCENLAT	63322
EQUATOR	63323	POLE	63324	AZIMOVER	63325
HEIGHT	63326	YRTRAN	63327	ZRTRAN	63330
SKIP	63331	MSFREQ	63332	WFFREQ	63333
MAINSWITCH	63334	VELOFLIGHT	63335	LSPERAU	63336
FLATTENING	63337	NMPERAU	63340	AUPEREQUAT	63341
KMPERNM	63342	EXPNAME	63350	IO1ENTPNT	63410
IO2ENTPNT	63411	MCPGM	63412	INTER	63413
COCON	63414	RECR0	63415	AOSCN	63416
AESCN	63417	CORCT	63420	OYOMP	63421

S-J.WHITE*06/23/64

OYOMPPGM

LABEL	LOC	LABEL	LOC	LABEL	LOC
CHCOR	63422	PRLOG	63423	CELCDMPGM	63424
DATANALYZE	63425	INTERCOM	63426	ACQUI	63427
RDMPTR	63430	CHPAR	63431	WFDRO	63432
RDXXX	63433	PLANP	63434	TIMEP	63435
PLDTP	63436	ID1RAD10	63440	ID2RAO10	63441
AZIMADO	63442	ELEVADO	63443	DOPPAD0	63444
RANGEADD	63445	INAZIMADO	63446	INELEVADO	63447
WFAO0	63450	MILLSTNADD	63451	SYSCDMREG1	63452
SYSCDMREG2	63453	SYSCDMREG3	63454	SYSCDMREG4	63455
SYSCDMREG5	63456	SYSCDMREG6	63457	INTERLCKSW	63460
PREVIDUSTM	63461	BODYSIZE	63462	AZELBXSCAN	63500
AZMTHSCAN	63501	ELVTNSCAN	63502	RADCXBSCAN	63503
RASCINSCAN	63504	DECLINSCAN	63505	ROTATERADN	63506
ROTATEAEBX	63507	ROTATEROBX	63510	HOLONHOLD	63511
AZIMOFFSET	63512	ELEVDFSET	63513	RAOFFSET	63514
DECOFFSET	63515	CRSSOFFSET	63516	ALNGDFFSET	63517
TIMETDHDLD	63520	PERIDDELEV	63521	ARCOFELEV	63522
PERIODAZIM	63523	ARCDFAZIM	63524	PERIDODEC	63525
ARCOFDEC	63526	PERIODRA	63527	ARCOFRA	63530
RADEGOTIME	63531	AZELDTIME	63532	RAOIDRA	63540
RADIODEC	63541	SYNCTIME	63542	ID3RAD10	63776
ID4RAD10	63777	AZIMOUT	64000	ID5RAD10	64776
ID6RAD10	64777	ELEVOUT	65000	ID7RAD10	65776
ID8RAD10	65777	DDPPUT	66000	ID9RAD10	66776
ID10RAD10	66777	RECAZIM	67000	ID11RAD10	67776
ID12RAD10	67777	RECELEV	70000	ID13RAD10	70775
ID14RAD10	70776	RANGEOUT	70777	MCPFILLER	71000
ID15RAD10	71776	ID16RAD10	71777	INTERAZIM	72000
ID17RAD10	72776	ID18RAD10	72777	INTERELEV	73000
ID19RAD10	73776	ID20RAD10	73777	INTEROOPP	74000
ID21RAD10	74776	ID22RAD10	74777	AZIMIN	75000
ID23RAD10	75776	ID24RAD10	75777	ELEVIN	76000
ID25RAD10	76775	ID26RAD10	76776	INTERRANGE	76777
ID1SYSENT	77576	ID2SYSENT	77577	SYSENTRIES	77600
ID1SYSNAM	77676	ID2SYSNAM	77677	SYSNAMES	77700

END OF LISTING

CAROS	L1 IO LABEL	TA STATEMENT	LOC	F	JKB	Y	NOTES
•	00000 FXAZEL	PROGRAM MATHIASEN*04/20/65					
•	00001 FXANE	U-TAG MSTART*ISTART	00000	00002	00005		
•	00002	FO 1*FXANE	00001	13350	62312		BUFFER LOOP FIXED AZ-EL
•	00003	COMMENT ANTENNA					PROGRAM
•	00004 MSTART	ENTRY	00002	61000	00000		
•	00005	RPL Y+1*(MSTART)	00003	36010	00002		
•	00006	EXIT	00004	61010	00002		
•	00007	COMMENT INITIALIZATION					SECTION
•	00010 ISTART	ENTRY	00005	61000	00000		INITIALIZATION SECTION
•	00011	RPL Y+1*(ISTART)	00006	36010	00005		
•	00012	ENT A*(IKYBROLEVEL1)*AZERO	00007	11420	63110		OO WE USE CONSOLE TYPEWRITER
•	00013	EXIT	00010	61010	00005		NO
•	00014	ENT A*(LX(SYSTATT11)*ANEQ	00011	11750	63313		SKIP IF NOT IN ANTENNA BUFFER
•	00015	JP HOLOUP	00012	61000	00024		MODE
•	00016	RJP U(INTERCOM1	00013	65020	63426		KEYBOARD/TYPEWRITER COMMUNICAT
•	00017	U-TAG QUESTION1*ANSWER1	00014	0106	00115		IONS
•	00020	ENT A*(CAZIMAOOR1	00015	11030	00221		AZIMUTH INPUT
•	00021	RJP OEGTOREV	00016	65000	00062		
•	00022	RJP U(INTERCOM1	00017	65020	63426		
•	00023	U-TAG QUESTION2*ANSWER2	00020	00121	00130		ELEVATION INPUT
•	00024	ENT A*(ELEVAOOR1	00021	11030	00222		
•	00025	RJP OEGTOREV	00022	65000	00062		
•	00026	EXIT	00023	61010	00005		WHEN COMPUTER IS IN BUFFER MOO
•	00027	COMMENT INITIALIZATION					E
•	00030 HOLOUP	RJP U(INTERCOM1	00024	65020	63426		KEYBOARD/TYPEWRITER COMMUNICAT
•	00031	U-TAG QUESTION3*0	00025	00134	00000		IONS
•	00032	RJP U(INTERCOM1	00026	65020	63426		
•	00033	U-TAG QUESTION4*0	00027	00151	00000		
•	00034	RJP U(INTERCOM1	00030	65020	63426		
•	00035	U-TAG MORON*0	00031	00164	00000		
•	00036 HCLLOUP2	RJP U(INTERCOM1	00032	65020	63426		
•	00037	O ANSWER3	00033	00000	00147		
•	00040	ENT Q*7700000000	00034	10030	00226		MASK FOR CHARACTER INPUT
•	00041	ENT A*05050505	00035	11030	00227		SPACES FOR REMAINING 4 CHARACT
•	00042	RPL A*LP*W(CHOICE1)*APOS	00036	45630	00220		ERS
•	00043	JP ERROR	00037	61000	00057		SET LAST 4 CHAR. OF INPUT WORD
•	00044	STR A*Q					TO SPACES
•	00045	SUB A*(IA1)*ANOT	00040	15000	00000		ERROR IF FIRST CHARACTER NOT L
•	00046	JP ACCEPTAZIM	00041	21530	00216		ETTER
•	00047	SUB Q*(IE1)*QZERO	00042	61000	00052		
•	00050	JP ERROR	00043	27430	00217		
•	00051	RJP U(INTERCOM1	00044	61000	00057		
•	00052	O ANSWER2	00045	65020	63426		
•	00053	ENT A*(ELEVAOOR1	00046	00000	00130		
•	00054	RJP OEGTOREV	00047	11030	00222		
•			00050	65000	00062		

CARD	LI	IO	LABEL	TA	STATEMENT	LOC	F	JKB	Y	NOTES
•	00055		ACCEP	JP	HOLUP2	00051	61000	00032		
•	00056		ACCEP	RJP	U(INTERCOM1	00052	65020	63426		
•	00057			O	ANSWER1	00053	00000	00115		
•	00060			ENT	A*WIAZIMAOOR1	00054	11030	00221		
•	00061			RJP	DEGTREV	00055	65000	00062		
•	00062			JP	HOLUP2	00056	61000	00032		
•	00063		ERROR	RJP	U(INTERCOM1	00057	65020	63426		
•	00064			U-TAG	QUESTIONS	00060	00202	00000		
•	00065			JP	HOLUP2	00061	61000	00032		
•	00066		DEGTREV	ENTRY		00062	61000	00000		
•	00067			STR	A*LOESTINY1	00063	15010	00102		ADDRESS OF ANGLE IN REVOLUTION
•	00070			RSH	A*150	00064	02000	00017		S
•	00071			STR	A*LO(IVIOEN01	00065	15010	00070		ADDRESS OF INPUT ANGLE IN DEGR
•	00072			STR	A*LO(SIGNCHECK)	00066	15010	00100		EES
•	00073			CL	A*	00067	11000	00000		SET A TO 0
•	00074		OIVIOENO	ENT	Q*W(01*QPOS	00070	10230	00000		IS OIVIOENO POSITIVE
•	00075			A00	Q*W(03608201*QNEG	00071	26730	00104		NO. A00 360 DEGREES. IS IT P
•	00076			JP	\$+2	00072	61000	00074		OSITIVE
•	00077			JP	\$-2	00073	61000	00071		YES.
•	00100			LSH	AQ*7	00074	07000	00007		NO.
•	00101			OIV	3600	00075	23000	00550		DEGREES B27
•	00102			SUB	A*1800*ANEQ	00076	21700	00264		REVOLUTIONS B27
•	00103			A00	Q*1	00077	26000	00001		IS REMAINDER GREATER THAN OIVI
•	00104		SIGNCHECK	ENT	A*W(01*APOS	00100	11630	00000		SOR/2
•	00105			SUB	Q*W(REV18271	00101	27030	00105		YES. ROUND OFF QUOTIENT.
•	00106		OESTINY	STR	Q*W(01	00102	11430	00000		YES. ORIGINAL OIVIOENO NEGATIVE
•	00107			EXIT		00103	61010	00062		YES. MAKE QUOTIENT NEGATIVE
•	00110		0360820	2640000000		00104	26400	00000		STORE REVOLUTIONS B27
•	00111		REV1827	1000000000		00105	10000	00000		OEC 360.820 36
•	00112		QUESTION1	F0	1*A	00106	06050	50505		O DEGREES
•	00113			-0	STATEMENT1	00107	77777	00110		OEC 1.827 1
•	00114		STATEMENT1	F0	4*AZIMUTH (DEGREES1	00110	06371	62232		REVOLUTION
•	00115			-0		00111	31150	55111		
•	00116		ANSWER1	F0	1*X20	00112	12142	71212		
•	00117			10	AZIMUTH	00113	30400	50505		
•	00120			0000000000		00114	77777	77777		
•	00121			2640000000		00115	35622	40505		
•	00122		QUESTION2	F0	1*A	00116	00010	00223		
•	00123			-0	STATEMENT2	00117	00000	00000		OEC 0820
•	00124		STATEMENT2	F0	4*ELEVATION (DEGREES1	00120	26400	00000		OEC 360.820
•	00125					00121	06050	50505		
•	00126					00122	77777	00123		
•	00127					00123	12211	23306		
•	00128					00124	31162	42305		
•	00129					00125	51111	21427		
•	00130					00126	12123	04005		

CAROS	L1 IO LABEL	TA STATEMENT	LOC	F	JKB	Y	NOTES
.	00125	-0	00127	77777	77777		
.	00126	F0 1*X20	00130	35622	40505		
.	00127	IO ELEVATION	00131	00010	00224		0820
.	00130	0000000000	00132	00000	00000		90.820
.	00131	0550000000	00133	05500	00000		
.	00132	F0 1*A	00134	06050	50505		
.	00133	-0 STATEMENT3	00135	77777	00136		
.	00134	F0 80*AZIMUTH (DEGREES) PREFIXING WITH00136 A, OR	00137	06371	62232		
			00137	31150	55111		
			00140	12142	71212		
			00141	30400	52527		
			00142	12131	63516		
			00143	23140	53416		
			00144	31150	50656		
			00145	05242	70505		
			00146	77777	77777		
.	00135	-0	00147	21610	50505		
.	00136	F0 1*L1	00150	00001	00220		
.	00137	01 CHOICE	00151	06050	50505		
.	00140	F0 1*A	00152	77777	00153		
.	00141	-0 STATEMENT4	00153	12211	23306		
.	00142	F0 80*ELEVATION (DEGREES) PREFIXING WITH00153 TH E.	00154	31162	42305		
			00155	51111	21427		
			00156	12123	04005		
			00157	25271	21316		
			00160	35162	31405		
			00161	34163	11505		
			00162	12750	50505		
			00163	77777	77777		
.	00143	-0	00164	06050	50505		
.	00144	F0 1*A	00165	77777	00166		
.	00145	-0 IOIOT	00166	06051	00627		
.	00146	F0 110*A CARRIAGE RETURN IS NECESSARY AFTER PREFIXED LETTER.	00167	27160	61412		
			00170	05271	23132		
			00171	27230	51630		
			00172	05231	21012		
			00173	30300	62736		
			00174	05061	33112		
			00175	27052	52712		
			00176	13163	51211		
			00177	05211	23131		
			00200	12277	50505		
			00201	77777	77777		
.	00147	-0	00202	06050	50505		
.	00150	F0 1*A	00203	77777	00204		
.	00151	-0 STATEMENTS	00204	36243	20515		
.	00152	F0 90*YOU HAVE TYPED ILLEGAL PREFIX. TRY AGAIN.	00205	06331	20531		
			00206	36251	21105		
			00207	16212	11214		

CAROS	LI	IO	LABEL	TA	STATEMENT	LOC	F	JKB	Y	NOTES
.	00153					00210	06210	52527		
.	00154	A				00211	12131	63575		
.	00155	E				00212	05053	12736		
.	00156	CHOICE				00213	05061	40616		
						00214	23750	50505		
						00215	77777	77777		
						00216	06050	50505		
						00217	12050	50505		
						00220	00000	00000		
										CONTAINS A FOR AZIMUTH OR E FO R ELEVATION
.	00157	AZIMAOOR			U-TAG	00221	00223	63053		
.	00160	ELEVAOOR			U-TAG	00222	00224	63054		
.	00161	AZIMUTH			0000000000	00223	00000	00000		RE
.	00162	ELEVATION			0000000000	00224	00000	00000		RE
.	00163				RESERVE 1	00225	00000	00000		
						00226	77000	00000		
						00227	00050	50505		
										QUESTED AZIMUTH IN O QUESTED ELEVATION IN

END OF LISTING

SPURT OUTPUT NO. 211

MATHIASSEN*04/20/65

FXAZEL

LABEL	LOC	LABEL	LOC	LABEL	LOC	LABEL	LOC
A	00216	A	00226	A	00227	A	00227
ACCEPTAZIM	00052	ACQAZIM	00226	ACQLEEV	00227	ACQLEEV	00227
ACQUI	63427	ACTUALTIME	63071	AOSCN	63075	AOSCN	63075
AESCN	63417	ALNOSFFSET	63142	ANSWER1	63416	ANSWER1	63416
ANSWER2	00130	ANSWER3	63517	ARCOFAZIM	00115	ARCOFAZIM	00115
ARCOFDEC	63526	ARCOFELEV	00147	ARCOFRA	63524	ARCOFRA	63524
ASTRODEC	63106	ASTRORA	63522	AUPEREQUAT	63530	AUPEREQUAT	63530
AZELOTIME	63332	ASTROSCAN	63105	AZIM	63341	AZIM	63341
AZIMOFFSET	63512	AZIMOUT	63500	AZIMOVER	63053	AZIMOVER	63053
AZIMADD	63442	AZIMADDR	64000	AZIMIN	63325	AZIMIN	63325
AZIMUTH	00223	AZIMTHSCAN	00221	BODYSIZE	75000	BODYSIZE	75000
BLASTOFF	63146	COCON	63501	CONVERTIME	63462	CONVERTIME	63462
CORCT	63420	COSORIEN	63414	COSAZEL	63135	COSAZEL	63135
CAZIM	63060	CELRODY	63065	CELCOMP	63070	CELCOMP	63070
CELEV	63061	CELTIME	63113	CHOICE	63424	CHOICE	63424
CHCOR	63422	CHPAR	63133	CRANGE	00220	CRANGE	00220
CRSSOFFSET	63516	CHPOUT	63431	COOPADO	63057	COOPADO	63057
D360820	63516	DATANALYZE	66000	DAY	63444	DAY	63444
DEC	00104	DECOFFSET	63425	DECOOT	63150	DECOOT	63150
DECLINSCAN	63003	DEGTREY	63515	DELTATEE	63010	DELTATEE	63010
DESTINY	63505	DIVIDENO	00062	OSECONDS	63316	OSECONDS	63316
DUMSECTTG	00102	DYDMP	00070	E	63141	E	63141
ELEV	63154	ELEVOFFSET	63421	ELEVOUT	00217	ELEVOUT	00217
ELEVADD	63054	ELEVADDR	63513	ELEVATION	65000	ELEVATION	65000
ELEVIN	63443	ELVTNSCAN	00222	EQUATOR	00224	EQUATOR	00224
ERROR	76000	ESTSHIFTEO	63502	EXPNAME	63323	EXPNAME	63323
FIRSTELEV	00057	FIRSTTHRU	63143	FLATTENING	63350	FLATTENING	63350
FRAMESIZE	63104	FREQUENCY	63153	FXANE	63337	FXANE	63337
GEOCNLAT	63101	GEODETLAT	63317	GMTMODU24	00000	GMTMODU24	00000
GMTSHIFTED	63322	HOLDNOHOLD	63321	HOLDUP	63145	HOLDUP	63145
HOLDUP2	63144	HOURMINUTE	63511	HOUREG	00024	HOUREG	00024
HEIGHT	00032	IO10RAD10	63137	ID11RAD10	63151	ID11RAD10	63151
ID12RAD10	63326	ID13RAD10	66777	ID14RAD10	67776	ID14RAD10	67776
ID15RAD10	67777	ID16RAD10	70775	ID17RAD10	70776	ID17RAD10	70776
ID18RAD10	71776	ID19RAD10	71777	ID18RAD10	72776	ID18RAD10	72776
ID19RAD10	72777	ID20RAD10	73776	ID19RAD10	63000	ID19RAD10	63000
ID1ENTPNT	63410	ID21RAD10	63050	ID1RAD10	63440	ID1RAD10	63440
ID1RECRD	63210	ID22RAD10	77576	ID1SYSNAM	77676	ID1SYSNAM	77676
ID1SYSPAR	63310	ID23RAD10	63130	ID20RAD10	73777	ID20RAD10	73777
ID21RAD10	63310	ID24RAD10	63130	ID23RAD10	75776	ID23RAD10	75776
ID24RAD10	74776	ID25RAD10	74777	ID26RAD10	76776	ID26RAD10	76776
ID2CELCOR	63001	ID2ENTPNT	76775	ID2RADCOR	63051	ID2RADCOR	63051
ID2RAD10	63441	ID2RECRD	63411	ID2SYSENT	77577	ID2SYSENT	77577
ID2SYSNAM	77677	ID2SYSPAR	63211	ID2TIME	63131	ID2TIME	63131
ID3RAD10	63776	ID4RAD10	63777	ID5RAD10	64776	ID5RAD10	64776
ID6RAD10	64777	ID7RAD10	65776	ID8RAD10	65777	ID8RAD10	65777
ID9RAD10	66776	ID10T	00166	INAZIMADD	63446	INAZIMADD	63446
INELEVADD	63447	INTER	63413	INTERAZIM	72000	INTERAZIM	72000
INTERCOM	63426	INTERDOPP	74000	INTERELEV	73000	INTERELEV	73000
INTERLCKSW	63460	INTERRANGE	76777	ISTART	00005	ISTART	00005
KHPERNM	63342	KYBROLEVEL	63110	LONGITUDE	63320	LONGITUDE	63320
LSPERAU	63336	MORON	00164	MAINSWITCH	63334	MAINSWITCH	63334

FXAZEL

LABEL	LOC	LABEL	LOC	LABEL	LOC
MCPFILLER	71000	MCPGM	63412	MILLSTNA00	63451
MINREG	63152	MSFREQ	63332	MSTART	00002
NNMPERAU	63340	POLE	63324	PERIOOAZIM	63523
PERIOO0EC	63525	PERIOOELEV	63521	PERIOORA	63527
PLOTP	63436	PLANP	63434	PREVI0USTM	63461
PRLOG	63423	QUESTION1	00106	QUESTION2	00121
QUESTION3	00134	QUESTION4	00151	QUESTIONS	00202
ROTAT0TAE8X	63507	ROTATERA0N	63506	ROTATER0BX	63511
RA	63002	RAOFFSET	63514	RAOOT	63007
RAARMODE	63312	RAOCBXS0AN	63503	RAOECOTIME	63531
RAOIODEC	63541	RAOIO0ETER	63102	RAOIORA	63540
RAIUS	63006	RAIUSOOT	63011	RANGE	63052
RANGE0UT	70777	RANGEA00	63445	RANGE00T	63062
RASCTNSCAN	63504	ROMTR	63430	ROXXX	63433
RECOROSIZF	63112	RECAZIM	63415	RECELEV	70000
RECFILE	63212	RECRO	63005	RECROSWTCH	63155
RELEASESW	63156	REVIB27	00105	SAZIM	63055
SCELTIME	63134	SOEC	63005	SECONDS	63140
SELEV	63056	SIOERTIME	63012	SIGNCHECK	00100
SINORIENT	63064	SINAZEL	63066	SKIP	63331
SRA	63004	SRA0TIME	63136	STATEMENT1	00110
STATEMENT2	00123	STATEMENT3	00136	STATEMENT4	00153
STATEMENTS	00204	SYNCTIMING	63542	SYS0MREG1	63452
SYS0MREG2	63453	SYS0MREG3	63454	SYS0MREG4	63455
SYS0MREG5	63456	SYS0MREG6	63457	SYSENTRIES	77600
SYSNAMES	77700	SYSTAT1	63313	SYSTAT2	63314
SYSSTAT0	63315	TIMECORR	63107	TIMEMOOE	63103
TIMEP	63435	TIME0H0LO	63520	TRUERANGE	63063
TRUETIME	63132	TTYSSTATUS	63111	TW0SEC00P	63017
VELOFLIGHT	63335	VIZ0EC1	63014	VIZ0EC2	63016
VIZRA1	63013	VIZRA2	63015	WFORO	63432
WFA00	63450	WFFREQ	63333	YEAR0MONTH	63147
ZRTRAN	63327	ZRTRAN	63330		

END OF LISTING

SPURT OUTPUT NO. 212

MATHIASEN*04/20/65

FXAZEL

LABEL	LOC	LABEL	LOC	LABEL	LOC
FXANE	00000	MSTART	00002	ISTART	00005
HOLUP	00024	HOLDUP2	00032	ACCEPTAZIM	00052
ERROR	00057	DEGTORV	00062	OIVIOEND	00070
SIGNCHECK	00100	QESTINY	00102	D360820	00104
REV1827	00105	QUESTION1	00106	STATEMENT1	00110
ANSWER1	00115	QUESTION2	00121	STATEMENT2	00123
ANSWER2	00130	QUESTION3	00134	STATEMENT3	00136
ANSWER3	00147	QUESTION4	00151	STATEMENT4	00153
MORON	00164	TOIOT	00166	QUESTIONS	00202
STATEMENTS	00204	A	00216	E	00217
CHOICE	00220	AZIMADOR	00221	ELEVADOR	00222
AZIMUTH	00223	ELEVATION	00224	A\$\$\$\$1111	00226
A\$\$\$\$1112	00227	TOICELCOR	63000	IO2CELCOR	63001
RA	63002	DEC	63003	SRA	63004
SDEC	63005	RAIUS	63006	RAOOT	63007
DECOOT	63010	RADIUSOOT	63011	SIDERTIME	63012
VIZRA1	63013	VIZOEC1	63014	VIZRA2	63015
VIZOEC2	63016	TWOSCOOP	63017	IOIRAOCOR	63050
IO2RAOCOR	63051	RANGE	63052	AZIM	63053
ELEV	63054	SAZIM	63055	SELEV	63056
CRANGE	63057	CAZIM	63060	CELEV	63061
RANGEOOT	63062	TRUERANGE	63063	SINORIENT	63064
COSORIENT	63065	SINAZEL	63066	COSAZEL	63070
ACQAZIM	63071	ACQEV	63075	FRAMESIZE	63101
RADIOMETER	63102	TIMEMODE	63103	FIRSTELEV	63104
ASTRORA	63105	ASTRODEC	63106	TIMECORR	63107
KYBROLEVEL	63110	TYSTATUS	63111	RECOROSIZE	63112
CELBOOY	63113	IOITIME	63130	IO2TIME	63131
TRUETIME	63132	CELTIME	63133	SCELTIME	63134
CONVERTIME	63135	SRAOTIME	63136	HOURLMINUTE	63137
SECONOS	63140	OSECONOS	63141	ACTUALTIME	63142
ESTSHIFTED	63143	GMTSHIFTED	63144	GMTMOOU24	63145
BLASTOFF	63146	YEARMONTH	63147	DAY	63150
HOUREG	63151	MINREG	63152	FIRSTTHRU	63153
DOUMSECTG	63154	RECROSSWTC	63155	RELEASESM	63156
IO1RECRD	63210	IO2RECRD	63211	RECFILE	63212
IO1SYSPAR	63310	IO2SYSPAR	63311	RADARMODE	63312
SYSTAT1	63313	SYSTAT2	63314	SYSTATO	63315
DELTALEE	63316	FREQUENCY	63317	LONGITUDE	63320
GEODETLAT	63321	GEOCENLAT	63322	EQUATOR	63323
POLE	63324	AZIMOVER	63325	HEIGHT	63326
YRTRAN	63327	ZRTRAN	63330	SKIP	63331
MSFREQ	63332	WFFREQ	63333	MAINSWITCH	63334
VELOFLIGHT	63335	LSPERAU	63336	FLATTENING	63337
NMPERAU	63340	AUPEREQUAT	63341	KMPERNM	63342
EXPNAME	63350	IO1ENTPNT	63410	IO2ENTPNT	63411
HCPGM	63412	INTER	63413	COCON	63414
RECRD	63415	AOSCN	63416	AESCN	63417
CORCT	63420	OYOMP	63421	CHCOR	63422
PRLOG	63423	CELCOMPGM	63424	DATANALYZE	63425
INTERCOM	63426	ACQUI	63427	RDTR	63430

SPURT OUTPUT NO. 212

MATHIASSEN*04/2D/65

FXAZEL

LABEL	LOC	LABEL	LDC	LABEL	LDC
CHPAR	63431	WFDRD	63432	RDXXX	63433
PLANP	63434	TIMEP	63435	PLOTP	63436
ID1RADID	63440	ID2RADID	63441	AZIMADD	63442
ELEVADD	63443	DDPPADD	63444	RANGEADD	63445
INAZIMADD	63446	INELEVADD	63447	WFADD	63450
MILLSTNADD	63451	SYSCEMREG1	63452	SYSCEMREG2	63453
SYSCEMREG3	63454	SYSCEMREG4	63455	SYSCEMREG5	63456
SYSCEMREG6	63457	INTERLCKSW	63460	PREVIDUSTH	63461
BODYSIZE	63462	AZELBXSCAN	63500	AZMTNSCAN	63501
ELVTNSCAN	63502	RADCBXSCAN	63503	RASCTNSCAN	63504
DECLINSCAN	63505	ROTATERADN	63506	ROTATEAEBX	63507
ROTATERDBX	63510	HOLDNOHOLD	63511	AZIMDFFSET	63512
ELEVOFFSET	63513	RADFFSET	63514	DECOFFSET	63515
CRSSOFFSET	63516	ALNGDFFSET	63517	TIMEHOLD	63520
PERIDDELEV	63521	ARCDFFLEV	63522	PERIDAZIM	63523
ARCOFAZIM	63524	PERIODDEC	63525	ARCOFDEC	63526
PERIDRA	63527	ARCOFRA	63530	RADECDTIME	63531
AZELDTIME	63532	RADIDRA	63540	RADIDDEC	63541
SYNCTIMING	63542	ID3RADID	63776	ID4RADID	63777
AZIMDUT	64000	ID5RADID	64776	ID6RADID	64777
ELEVOUT	65000	ID7RADID	65776	ID8RADID	65777
DDPPDUT	66000	ID9RADID	67776	ID10RADID	67777
RECAZIM	67000	ID11RADID	67776	ID12RADID	67777
RECELEV	70000	ID13RADID	70775	ID14RADID	70776
RANGEOUT	70777	MCPFILLER	71000	ID15RADID	71776
ID16RADID	71777	INTERAZIM	72000	ID17RADID	72776
ID18RADID	72777	INTERELEV	73000	ID19RADID	73776
ID20RADID	73777	INTERDDPP	74000	ID21RADID	74776
ID22RADID	74777	AZIMIN	75000	ID23RADID	75776
ID24RADID	75777	ELFVIN	76000	ID25RADID	76775
ID26RADID	76776	INTERRANGE	76777	ID1SYSENT	77576
ID2SYSENT	77577	SYSENTRIES	77600	ID1SYSNAM	77676
ID2SYSNAM	77677	SYSNAMES	77700		

END OF LISTING

CARD	L I	O LABEL	TA STATEMENT	LOC	F	JKB	Y	NOTES
.	CC000	FXRAOEC	PROGRAM MATHIASEN#2/17/65					
.	CC001	FXRAOEC	U-TAG MSTART*I START	00000	00002	00005		
.	CC002		FO I#FRAOC	00001	13270	61110		BUFFER LOOP FIXED RT. ASCE NSION-OECLINATION PGM
.	CC003		COMMENT ANTENNA					
.	CC004	MSTART	ENTRY	00002	61000	00000		
.	CC005		RPL Y+I*L(MSTART)	00003	36010	00002		
.	CC006		EXIT	00004	61010	00002		
.	CC007		COMMENT INITIALIZATION					
.	CC010	I START	ENTRY	00005	61000	00000		SECTION INITIALIZATION SECTION
.	CC011		RPL Y+I*L(I START)	00006	36010	00005		
.	CC012		ENT A*(KYBROLEVEL)*AZERO	00007	11420	63110		OO WE USE CONSOLE TYPEWRITER
.	CC013		EXIT	00010	61010	00005		NO
.	CC014		ENT A*LX(SYSTATI)*ANEQ	00011	11750	63313		SKIP IF NOT IN ANTENNA BUFFER MODE
.	CC015		JP HOLOUP	00012	61000	00026		
.	CC016		CL B3*	00013	12300	00000		
.	CC017	NEXTQUERY	ENT A*B3	00014	11003	00000		
.	CC020		LSH A*1	00015	06000	00001		
.	CC021		A00 A*QUESTION1	00016	20000	00233		
.	CC022		STR A*(QUESTIONMARK)	00017	15020	00021		
.	CC023	QUESTIONMARK	RJP U(INTERCOM)	00020	65020	63426		
.	CC024		O O	00021	00000	00000		
.	CC025		RJP L(WHITHER*B3)	00022	65013	00072		
.	CC026		BK B3*5	00023	71300	00005		
.	CC027		JP NEXTQUERY	00024	61000	00014		
.	CC030		EXIT	00025	61010	00005		WHEN COMPUTER IS IN BUFFER MOO E
.	CC031		COMMENT INITIALIZATION					KEYBOARD/TYPEWRITER COMMUNICAT IONS
.	CC032	HOLoup	RJP U(INTERCOM)	00026	65020	63426		
.	CC033		U-TAG QUESTION3*0	00027	00314	00000		
.	CC034		RJP U(INTERCOM)	00030	65020	63426		
.	CC035		U-TAG QUESTION4*0	00031	00330	00000		
.	CC036		RJP U(INTERCOM)	00032	65020	63426		
.	CC037		U-TAG QUESTION6*0	00033	00357	00000		
.	CC040		RJP U(INTERCOM)	00034	65020	63426		
.	CC041		U-TAG QUESTION7*0	00035	00372	00000		
.	CC042		RJP U(INTERCOM)	00036	65020	63426		
.	CC043		U-TAG QUESTION8*0	00037	00405	00000		
.	CC044		RJP U(INTERCOM)	00040	65020	63426		
.	CC045		U-TAG QUESTION9*0	00041	00421	00000		
.	CC046		RJP U(INTERCOM)	00042	65020	63426		
.	CC047		U-TAG MORON*0	00043	00434	00000		
.	CC050	HOLoup2	RJP U(INTERCOM)	00044	65020	63426		
.	CC051		O ANSWER3	00045	00000	00465		
.	CC052		ENT Q*7700000000	00046	10030	00634		MASK FOR CHARACTER INPUT SPACES FOR REMAINING 4 CHARACT ERS
.	CC053		ENT A*05050505	00047	11030	00635		
.	CC054		RPL A*LP*(CHOICE)*APO\$	00050	45630	00467		SET LAST 4 CHAR. OF INPUT WORD TO SPACES
.	CC055		JP ERROR	00051	61000	00230		ERROR IF FIRST CHARACTER NOT L ETTER

CARDS	LI	ID	LABEL	TA	STATEMENT	LOC	F	JKB	Y	NOTES
•	CC056			CL	B3*	00052	12300	00000		
•	CC057		NEXTLETTER	ENT	A*(CHOICE)	00053	11030	00467		
•	CC060			SUB	A*(FDA*B3)*ANOT	00054	21533	00063		
•	CC061			JP	ACCEPTAOD	00055	61000	00061		
•	CC062			BSK	R3*6	00056	71300	00006		
•	CC063			JP	NEXTLETTER	00057	61000	00053		
•	CC064			JP	ERROR	00060	61000	00230		
•	CC065		ACCEPTAOD	RJP	L(WHITHER*B3)	00061	65013	00072		
•	CC066			JP	HOLDUP2	00062	61000	00044		
•	CC067		FOA	FD	1*A	00063	06050	50505		
•	CC070			FD	1*D	00064	11050	50505		
•	CC071			FD	1*R	00065	27050	50505		
•	CC072			FD	1*B	00066	07050	50505		
•	CC073			FD	1*E	00067	12050	50505		
•	CC074			FD	1*S	00070	30050	50505		
•	CC075			FD	1*N	00071	23050	50505		
•	CC076		WHITHER	O	ACCEPTRA	00072	00000	00103		
•	CC077			O	ACCEPTDEC	00073	00000	00112		
•	CC100			O	ACCEPTRHO	00074	00000	00134		
•	CC101			O	ACCRADOT	00075	00000	00142		
•	CC102			O	ACCDECOOT	00076	00000	00155		
•	CC103			O	ACCRHODOT	00077	00000	00164		
•	CC104			O	NOMORE	00100	00000	00101		
•	CC105		NOMORE	ENTRY		00101	61000	00000		
•	CC106			JP	L(ISTART)	00102	61010	00005		
•	CC107		ACCEPTRA	ENTRY		00103	61000	00000		
•	CC110			RJP	U(INTERCOM)	00104	65020	63426		RIGHT ASCENSION INPUT IN DEGREES
•	CC111			O	ANSWER1	00105	00000	00452		ES
•	CC112			ENT	A*(RAADDR)	00106	11030	00111		
•	CC113			RJP	OEGTOREV	00107	65000	00172		CONVERT TO REVOLUTIONS AND STO RE
•	CC114			EXIT		00110	61010	00103		
•	CC115		RAADDR	U-TAG	RIGHTASC*RA	00111	00456	63002		
•	CC116		ACCEPTDEC	ENTRY		00112	61000	00000		
•	CC117			RJP	U(INTERCOM)	00113	65020	63426		DECLINATION INPUT IN DEGREES
•	CC120			O	ANSWER2	00114	00000	00460		
•	CC121			ENT	A*(OECADOR)	00115	11030	00131		
•	CC122			RJP	OEGTOREV	00116	65000	00172		CONVERT TO REVOLUTIONS AND STO RE
•	CC123			MUL	W(TWOPI)	00117	22030	00132		RAOIAN B23
•	CC124			LSH	A*3	00120	06000	00003		B26
•	CC125			ENT	Q*26D	00121	10000	00032		
•	CC126			RJP	COS	00122	65000	00514		COS(DECLINATION) B2B
•	CC127			STR	A*(COSOSEC)	00123	15030	00133		
•	CC130			ENT	Q*(PURERADOT)	00124	10030	00154		D(ALPHA)/OT B37,RAOIAN/SEC
•	CC131			MUL	W(COSOSEC)	00125	22030	00133		(O(ALPHA)/DT\$COS(DEC) B65
•	CC132			LSH	A*2	00126	06000	00002		B37
•	CC133			STR	A*(RADOT)	00127	15030	63007		
•	CC134			EXIT		00130	61010	00112		
•	CC135		OECADOR	U-TAG	DECLIN*OEC	00131	00464	63003		DECLINATION INPUT AND OUTPUT
•	CC136		TWOPI	3110375523		00132	31103	75523		OEC 6.2831853826 2

CARD	LI	IO LABEL	TA STATEMENT	LOC	F	JKB	Y	NOTES
.	00137	COSDEC	2000000000	00133	20000	00000		PI DEC 1.828 S(OECLINATION)
.	00140	ACCEPTRHO	ENTRY	00134	61000	00000		
.	00141		RJP U(INTERCOM)	00135	65020	63426		RADIUS INPUT IN NAUTICAL MILES OR A.U.
.	00142		O ANSWER4	00136	00000	00470		
.	00143		ENT A*(MYRAOIUS)	00137	11030	00474		
.	00144		STR A*(RAOIUS)	00140	15030	63006		
.	00145		EXIT	00141	61010	00134		
.	00146	ACCRAOOT	ENTRY	00142	61000	00000		
.	00147		RJP U(INTERCOM)	00143	65020	63426		O(ALPHA)/OT INPUT IN DEGREES/S EC
.	00150		O ANSWERS	00144	00000	00475		
.	00151		ENT A*(RAOOTAOOR)	00145	11030	00153		
.	00152		RJP OEGTORAO	00146	65000	00216		CONVERT TO RADIANS/SEC AND STO RE
.	00153		MUL W(COSDEC)	00147	22030	00133		O(ALPHA)/OT\$COS(DEC) B65 B37
.	00154		LSH A*2	00150	06000	00002		
.	00155		STR A*(RAOOT)	00151	15030	63007		
.	00156		EXIT	00152	61010	00142		
.	00157	RAOOTAOOR	U-TAG MYRAOOT*PURERAOOT	00153	00501	00154		DEC 0.837 ALPHA)/OT* RADIANS/S
.	00160	PUREROOT	0000000000	00154	00000	00000		O(DELTA)/OT INPUT IN DEGREES/SEC C
.	00161	ACCOCDOOT	ENTRY	00155	61000	00000		
.	00162		RJP U(INTERCOM)	00156	65020	63426		
.	00163		O ANSWER6	00157	00000	00502		
.	00164		ENT A*(OECOOTAOOR)	00160	11030	00163		
.	00165		RJP OEGTORAO	00161	65000	00216		CONVERT TO RADIANS/SEC AND STO RE
.	00166		EXIT	00162	61010	00155		
.	00167	OECOOTAOOR	U-TAG MYOECOOT*OECOOT	00163	00506	63010		O(DELTA)/OT INPUT AND OUTPUT
.	00170	ACCRHOOOT	ENTRY	00164	61000	00000		
.	00171		RJP U(INTERCOM)	00165	65020	63426		O(RHO)/OT INPUT IN N.M./SEC
.	00172		O ANSWER7	00166	00000	00507		
.	00173		ENT A*(MYRHOOOT)	00167	11030	00513		
.	00174		STR A*(RAOIUSOOT)	00170	15030	63011		
.	00175		EXIT	00171	61010	00164		
.	00176	OEGTOREV	ENTRY	00172	61000	00000		
.	00177		STR A*(OESTINY)	00173	15010	00212		ADDRESS OF ANGLE IN REVOLUTION S
.	00200		RSH A*150	00174	02000	00017		
.	00201		STR A*(OIVIOENO)	00175	15010	00200		ADDRESS OF INPUT ANGLE IN OEGR EES
.	00202		STR A*(SIGNCHECK)	00176	15010	00210		
.	00203		CL A*	00177	11000	00000		SET A TO 0
.	00204	OIVIOENO	ENT Q*(O1*QPOS)	00200	10230	00000		IS OIVIOENO POSITIVE
.	00205		A00 Q*(O360820)*QNEG	00201	26730	00214		NO. A00 360 DEGREES. IS IT P OSITIVE
.	00206		JP \$+2	00202	61000	00204		YES.
.	00207		JP \$-2	00203	61000	00201		NO.
.	00210		LSH AQ*7	00204	07000	00007		DEGREES B27

CAROS	L1 IO LABEL	TA STATEMENT	LOC	F	JKB	Y	NOTES
.	00211	OIV 3600	00205	23000	00550		REVOLUTIONS B27
.	00212	SUB A*1800*ANEQ	00206	21700	00264		IS REMAINDER GREATER THAN OIVI
.	00213	A00 Q*1	00207	26000	00001		SOR/2
.	00214	ENT A*W(OI)*APOS	00210	11630	00000		YES. ROUNO OFF QUOTIENT.
.	00215	SUB Q*W(REV)B27I	00211	27030	00215		YES. MAKE QUOTIENT NEGATIVE
.	00216	STR Q*W(OI)	00212	14030	00000		STORE REVOLUTIONS B27
.	00217	EXIT	00213	61010	00172		
.	00220	0360820	00214	26400	00000		DEC 360.820
.	00221	REV1B27	00215	10000	00000		DEC 1.827
.	00222	DEGTORAO	00216	61000	00000		CONVERT DEGREES/SEC TO RAOIANS
.	00223	STR A*L(FATEI)	00217	15010	00225		/SEC.
.	00224	RSH A*150	00220	02000	00017		
.	00225	STR A*L(WHENCE I	00221	15010	00222		O(THETA)/OT B29 DEGREES/SEC
.	00226	WHENCE	00222	10030	00000		RAOIANS PER DEGREE B34
.	00227	ENT Q*W(OI)	00223	22030	00227		
.	00228	MUL W(OEGRAOI	00224	07000	00004		
.	00230	LSH AQ*4	00225	15030	00000		O(THETA)/OT B37 RAOIANS/SEC
.	00231	STR A*W(OI)	00226	61010	00216		.0174532925 B34
.	00232	EXIT	00227	21676	43242		
.	00233	DEGRAO	00230	65020	63426		
.	00234	ERROR	00231	00343	00000		
.	00235	RJP U(INTERCOMI	00232	61000	00044		
.	00236	U-TAG QUESTIONS	00233	06050	50505		
.	00237	JP HOLOUP2	00234	06050	50505		
.	00240	FO 1*A	00235	06050	50505		
.	00241	-O STATEMENT1	00236	77777	00255		
.	00242	-O STATEMENT2	00237	06050	50505		
.	00243	FO 1*A	00240	77777	00263		
.	00244	-O STATE1	00241	06050	50505		
.	00245	FO 1*A	00242	77777	00270		
.	00246	-O STATE2	00243	06050	50505		
.	00247	FO 1*A	00244	77777	00276		
.	00250	-O STATE3	00245	06050	50505		
.	00251	FO 1*A	00246	77777	00304		
.	00252	-O STATE4	00247	27161	41531		
.	00253	FO 5*RIGHT ASCENSION (DEGREES)	00250	05063	01012		
.	00254	-O	00251	23301	62423		
.	00255	FO 5*DECLINATION (DEGREES)	00252	05511	11214		
.	00256	STATEMENT2	00253	77121	23040		
.	00257	FO	00254	77777	77777		
.	00258	STATEMENT1	00255	11121	02116		
.	00259	FO	00256	23063	11624		
.	00260	STATEMENT2	00257	23055	11112		
.	00261	FO	00260	14271	21230		
.	00262	STATEMENT1	00261	40050	50505		
.	00263	FO	00262	77777	77777		
.	00264	STATE1	00263	27061	11632		
.	00265	FO	00264	30055	11206		
.	00266	STATE1	00265	27311	50527		
.	00267	FO	00266	06111	61640		

CAROS	L1 IO LABEL	TA STATEMENT	LOC	F	JKB	Y	NOTES
•	00260	-0	00267	7777	7777	7777	
•	00261 STATE2	F0 5•R.A. 00T (DEGREES/SEC)	00270	27750	67505		
			00271	11243	10551		
			00272	11121	42712		
			00273	12307	43012		
			00274	10400	50505		
•	00262	-0	00275	7777	7777	7777	
•	00263 STATE3	F0 5•OEC. 00T (DEGREES/SEC)	00276	11121	07505		
			00277	11243	10551		
			00300	11121	42712		
			00301	12307	43012		
			00302	10400	50505		
•	00264	-0	00303	7777	7777	7777	
•	00265 STATE4	F0 7•RADIUS 00T (NAUTICAL MILES/SEC)	00304	27061	11632		
			00305	30051	12431		
			00306	05512	30632		
			00307	31161	00621		
			00310	05221	62112		
			00311	30743	01210		
			00312	40050	50505		
			00313	7777	7777	7777	
•	00266	-0	00314	06050	50505		
•	00267 QUESTION3	F0 1•A	00315	7777	00316		
•	00270	-0	00316	27161	41531		
•	00271 STATEMENT3	F0 90•RIGHT ASCENSION (DEGREES), PREF100316 XING WITH A.	00317	05063	01012		
			00320	23311	62423		
			00321	05511	11214		
			00322	27121	23040		
			00323	56052	52712		
			00324	13163	51623		
			00325	14053	41631		
			00326	15050	65605		
			00327	7777	7777	7777	
•	00272	-0	00330	06050	50505		
•	00273 QUESTION4	F0 1•A	00331	7777	00332		
•	00274	-0	00332	11121	02116		
•	00275 STATEMENT4	F0 80•DECLINATION (DEGREES), PREF1XING00332 WITH 0.	00333	23063	11624		
			00334	23055	11112		
			00335	14271	21230		
			00336	40560	52527		
			00337	12131	63516		
			00340	23140	53416		
			00341	31150	51156		
			00342	7777	7777	7777	
•	00276	-0	00343	06050	50505		
•	00277 QUESTION5	F0 1•A	00344	7777	00345		
•	00300	-0	00345	36243	20515		
•	00301 STATEMENTS	F0 90•YOU HAVE TYPE0 ILLEGAL PREF1X. TRY AGAIN.	00346	06331	20531		
			00347	36251	21105		

CAROS	L1 IO LABEL	TA STATEMENT	LOC	F	JKB	Y	NOTES
.	CC302	QUESTION6	00350	16212	11214		
.	CC303	QUESTION6	00351	06210	52527		
.	CC304	STATEMENT6	00352	12131	63575		
.	CC305	STATEMENT6	00353	05053	12736		
			00354	05061	40616		
			00355	23750	50505		
			00356	77777	77777		
			00357	06050	50505		
			00360	77777	00361		
			00361	27061	11632		
			00362	30055	11206		
			00363	27311	50527		
			00364	06111	61640		
			00365	56052	52712		
			00366	13163	51623		
			00367	14053	41631		
			00370	15052	75605		
			00371	77777	77777		
			00372	06050	50505		
			00373	77777	00374		
			00374	27061	12431		
			00375	05511	11214		
			00376	27121	23074		
			00377	30121	04056		
			00400	05252	71213		
			00401	16351	62314		
			00402	05341	63115		
			00403	05075	60505		
			00404	77777	77777		
			00405	06050	50505		
			00406	77777	00407		
			00407	11121	01124		
			00410	31055	11112		
			00411	14271	21230		
			00412	74301	21040		
			00413	56052	52712		
			00414	13163	51623		
			00415	14053	41631		
			00416	15051	25605		
			00417	24270	50505		
			00420	77777	77777		
			00421	06050	50505		
			00422	77777	00423		
			00423	27061	11632		
			00424	30112	43105		
			00425	51237	52275		
			00426	74301	21040		
			00427	56052	52712		
			00430	13163	51623		

FRADEC

[illegible]

CARD	LI	IO	LABEL	TA	STATEMENT	LOC	F	JKB	Y	NOTES
	00364		ANSWER7		F0 1*X24	00507	35626	40505		DELTA1/OT DEGREES/S
	00365				10 MYRH000T	00510	00010	00513		
	00366				0707777777	00511	70777	77777		-7.824
	00367				0700000000	00512	07000	00000		+7.824
	00370		MYRH000T		0000000000	00513	00000	00000		0.
	00371		COS		JP COS	00514	61000	00514		RHO1/OT NAUTICAL M
	00372				ENT 87*L(COS)	00515	12710	00514		ARBITRARY
	00373				STR 87*L(SIN)	00516	16710	00525		STORE EXIT
	00374				ENT 87*1	00517	12700	00001		FLAG
	00375				STR 87*L(SIN+420)	00520	16710	00577		
	00376				JP COS+7*AP0S	00521	60600	00523		
	00377				CP A*	00522	15040	00000		
	00400				JP SIN+2*AN0T	00523	60500	00527		
	00401				ENT A*(SIN+600)	00524	11030	00621		COS (0) 1
	00402				JP SIN	00525	61000	00525		ARBITRARY
	00403		SIN		STR 80*L(SIN+420)	00526	16010	00577		FLAG
	00404				STR A*(SIN+680)*AP0S	00527	15630	00631		
	00405				CP A*	00530	15040	00000		SET POSITIVE
	00406				RPT 290	00531	70000	00035		
	00407				LSH A*I*ANEG	00532	66700	00001		SHIFT UNTIL BIT 29 1
	00410				JP L(SIN)	00533	61010	00525		SIN(X) 0
	00411				LSH A*290	00534	06000	00035		SHIFT RIGHT 1
	00412				SUB Q*87*QPOS	00535	27607	00000		QNEG IMPLIES X EXCEEDS PI/2
	00413				JP SIN+340	00536	61000	00567		
	00414				COM Q*300*YMORE	00537	04300	00036		PREVENT ILLEGITIMATE SHIFT
	00415				ENT Q*300	00540	10000	00036		MAX SHIFT 30
	00416				STR Q*L(SIN+130)	00541	14010	00542		SOTRE SHIFT COUNT
	00417				RSH A*0	00542	02000	00000		SCALE ARGUMENT AT 28
	00420				COM A*(SIN+590)*YMORE	00543	04730	00620		COMPARE WITH PI/2
	00421				JP SIN+370	00544	61000	00572		REDUCE TO 1ST QUADRANT
	00422				BSK 80*L(SIN+420)	00545	71010	00577		SKIP IF SINE
	00423				SUB A*(SIN+590)*SKIP	00546	21130	00620		PI/2-X TO A
	00424				ENT Q*(SIN+680)*QPOS	00547	10230	00631		CHECK SIGN
	00425				CP A*	00550	15040	00000		A BEARS PROPER SIGN
	00426				STR A*(SIN+680)	00551	15030	00631		STORE SIGNED ARGUMENT
	00427				ENT Q*A	00552	10070	00000		SCALED AT 28
	00430				MUL W(SIN+680)	00553	22030	00631		X 2 AT 28+28.56
	00431				RSH AQ*290	00554	03000	00035		SQUARED AT 27
	00432				STR Q*(SIN+690)	00555	14030	00632		STORE X 2
	00433				ENT Q*(SIN+640)	00556	10030	00625		C9
	00434				ENT B*3	00557	12700	00003		LOOP 4 TIMES
	00435				MUL W(SIN+690)	00560	22030	00632		SUM POLYNOMIAL
	00436				ENT Q*A	00561	10070	00000		
	00437				A00 Q*(SIN+600*87)	00562	26037	00621		
	00440				BJP 87*SIN+270	00563	72700	00560		
	00441				MUL W(SIN+680)	00564	22030	00631		
	00442				LSH AQ*2	00565	07000	00002		SCALE AT 28
	00443				JP L(SIN)	00566	61010	00525		RETURN
	00444				COM Q*X77741*YLESS	00567	04240	77741		CHECK FOR LEGIT SHIFT
	00445				ENT Q*X77741	00570	10040	77741		-30

CAROS	L1 IO LABEL	TA STATEMENT	LOC	F JK8 Y	NOTES
•	00446	STR Q=CPL(SIN+130)	00571	14050 00542	
•	00447	RSH AQ*2	00572	03000 00002	
•	00450	OIV W(SIN+590)	00573	23030 00620	FORM X/(PI/2)
•	00451	ENT A=0	00574	11000 00000	CLEAR A
•	00452	LSH AQ*L(SIN+130)	00575	07010 00542	
•	00453	LSH AQ*2	00576	07000 00002	INTEGER TO A, FRACTION IN Q
•	00454	A00 A=0	00577	20000 00000	
•	00455	RSH AQ*2	00600	03000 00002	0 FOR SIN , 1 FOR COS
•	00456	ENT LP=W(SIN+670)*ANOT	00601	40530 00630	
•	00457	ENT LP=W(SIN+600)*ANOT	00602	40530 00621	
•	00460	JP SIN+510	00603	61000 00610	
•	00461	SUB LP=W(SIN+660)	00604	42030 00627	
•	00462	ENT Q=W(SIN+680)*QPOS	00605	10230 00631	ACCORD SIGN
•	00463	CP A*	00606	15040 00000	
•	00464	JP L(SIN)	00607	61010 00525	
•	00465	ENT LP=W(SIN+650)*000	00610	40330 00626	
•	00466	JP SIN+560	00611	61000 00615	
•	00467	14200 0	00612	14200 00000	CP*Q*QPOS
•	00470	SUB Q=W(SIN+660)*SKIP	00613	27130 00627	
•	00471	A00 Q=W(SIN+660)	00614	26030 00627	
•	00472	MUL W(SIN+590)	00615	22030 00620	
•	00473	LSH AQ*2	00616	07000 00002	SCALE AT 28
•	00474	JP SIN+180	00617	61000 00547	RETURN
•	00475	31103 75524	00620	31103 75524	PI/2 AT 28
•	00476	20000 00000	00621	20000 00000	C1 1\$0 AT 28
•	00477	52525 25600	00622	52525 25600	C3-0\$1666 665669E00831
•	00500	10420 71732	00623	10420 71732	C5 0.833302518E-2834
•	00501	76301 15701	00624	76301 15701	C7-.1980741431E-3837
•	00502	00127 23405	00625	00127 23405	C9 0.2601886909E-5840
•	00503	60000 00000	00626	60000 00000	
•	00504	40000 00000	00627	40000 00000	
•	00505	17777 77777	00630	17777 77777	
•	00506	0 0	00631	00000 00000	TEMPORARY
•	00507	0 0	00632	00000 00000	TEMPORARY
•	00510	RESERVE 1	00633	00000 00000	
•			00634	77000 00000	
•			00635	00050 50505	

END OF LISTING

MATHIASSEN*2/17/65

FXRADEC

LABEL	LOC	LABEL	LOC	LABEL	LOC
AS\$S\$S\$1111	D0634	AS\$S\$S\$1112	00635	ACCOECOOT	00155
ACCEPTADD	00061	ACCEPTDEC	00112	ACCEPTRA	00103
ACCEPTRHD	00134	ACCRADOT	00142	ACCRHODOT	00164
ACQAZIM	63071	ACQELEV	63075	ACQUI	63427
ACTUALTIME	63142	ADSCN	63416	AESN	63417
ALNGDFFSET	63517	ANSWER1	00452	ANSWER2	00460
ANSWER3	00465	ANSWER4	00470	ANSWER5	00475
ANSWER6	00502	ANSWER7	00507	ARCOFAZIM	63524
ARCOFDEC	63526	ARCOFELEV	63522	ARCOFRA	63530
ASTRODEC	63106	ASTORRA	63105	AUPEREQUAT	63341
AZELDIME	63532	AZELBXSCAN	63500	AZIM	63053
AZIMOFFSET	63512	AZIMOUT	64000	AZIMOVER	63325
AZIMADD	63442	AZIMIN	75000	AZMTHSCAN	63501
BODYSIZE	63462	BLASTOFF	63146	COCON	63414
CONVERTIME	63135	CDRCT	63420	COS	00514
COSORIENT	63065	CDSAZEL	63070	CDSOEC	00133
CAZIM	63060	CELBOOY	63113	CELCOMPGM	63424
CELEV	63061	CELTIME	63133	CHOICE	00467
CHCOR	63422	CHPAR	63431	CRANGE	63057
CRSSOFFSET	63516	OOPPOUT	66000	ODPPA00	63444
D360B20	00214	DATANALYZE	63425	OAY	63150
DEC	63003	DECDFFSET	63515	OECAOOR	00131
DECOOT	63010	DECOOTADDR	00163	DECLIN	00464
DECLINSCAN	63505	DEGRAO	00227	DEGTORAO	00216
DEGTOREV	00172	DELTATEE	63316	DESTINY	00212
DIVIOENO	00200	OSECONOS	63141	OUMSECTTG	63154
DYDMP	63421	ELEV	63054	ELEVOFFSET	63513
ELEVOUT	65000	ELEVA00	63443	ELEVIN	76000
ELVTNSCAN	63502	EQUATR	63323	ERROR	00230
ESTSHIFTED	63143	EXPNAME	63350	FATE	00225
FOA	D0063	FIRSTELEV	63104	FIRSTTHRU	63153
FLATTENING	63337	FRAMESIZE	63101	FREQUENCY	63317
FXRAOEC	00000	GEOCNLAT	63322	GEOETLAT	63321
GMTMODU24	63145	GMTSHIFTED	63144	HOLONOHLO	63511
HOLDUP	00026	HOLUP2	00044	HDURMINUTE	63137
HOURREG	63151	HEIGHT	63326	I01ORAO10	66777
I011RAO10	67776	I012RAO10	67777	I013RAO10	70775
I014RAO10	70776	I015RAO10	71776	I016RAO10	71777
I017RAO10	72776	I018RAO10	72777	I019RAO10	73776
I01CELCOR	63000	IDIENTPNT	63410	I01RAOCDR	63050
I01RAO10	63440	IDIRECRO	63210	I01SYSENT	77576
I01SYSNAM	77676	ID1SYSPAR	63310	I01TIME	63130
ID20RAO10	73777	ID21RAO10	74776	I022RAO10	74777
ID23RAO10	75776	ID24RAO10	75777	ID25RAO10	76775
ID26RAO10	76776	ID2CELCOR	63001	ID2ENTPNT	63411
I02RADCDR	63051	I02RAO10	63441	ID2RECDR	63211
ID2SYSENT	77577	I02SYSNAM	77677	I02SYSPAR	63311
ID2TIME	63131	ID3RAO10	63776	ID4RAO10	63777
I05RAO10	64776	I06RAO10	64777	I07RAO10	65776
ID8RAO10	65777	ID9RAO10	66776	ID10T	00436
INAZIMADD	63446	INELEVADD	63447	INTER	63413

SPURT OUTPUT NO. 211

MATHIASSEN*2/17/65

FXRAOEC

LABEL	LOC	LABEL	LOC	LABEL	LOC
INTERAZIM	72000	INTERCOM	63426	INTEROOPP	74000
INTERLEV	73000	INTERLCKSW	63460	INTERRANGE	76777
ISTART	00005	KMPERNM	63342	KYBROLEVEL	63110
LONGITUDE	63320	LSPERAU	63336	MORON	00434
MAINSWITCH	63334	MCPFILLER	71000	MCPGM	63412
MILLSTNAO	63451	MINREG	63152	MSFREQ	63332
WSTART	00002	MYOECOOT	00506	MYRAOOT	00501
MYRAOIUS	00474	MYRHOOOT	00513	NOMORE	00101
NEXTLETTER	00053	NEXTQUERY	00014	NMPERAU	63340
POLE	63324	PERIOOAZIM	63523	PERIOOEC	63525
PERIOOEV	63521	PERIOORA	63527	PLOTP	63436
PLANP	63434	PREVIOUSIM	63461	PRLOG	63423
PURERAOT	00154	QUESTION1	00233	QUESTION3	00314
QUESTION4	00330	QUESTIONS	00343	QUESTION6	00357
QUESTION7	00372	QUESTION8	00405	QUESTION9	00421
QUESTMARK	00021	ROTATEAEBX	63507	ROTATERAON	63506
ROTATEROBX	63510	RA	63002	RAOFFSET	63514
RAAOOR	00111	RAOOT	63007	RAOOTAOR	00153
RAOARMOOE	63312	RAOGBXSCAN	63503	RAOECOTIME	63531
RAOIODEC	63541	RAOIOMETER	63102	RAOIORA	63540
RAOIUS	63006	RAOIUSOOT	63011	RANGE	63052
RANGEOUT	70777	RANGEAOO	63445	RANGE00T	63062
RASCTNSCAN	63504	ROMTR	63430	ROXXX	63433
RECROSIZ	63112	RECAZIM	67000	RECELEV	70000
RECFILE	63212	RECRO	63415	RECROSWTCH	63155
RELEASESW	63156	REV1827	00215	RIGHTASC	00456
RIGHTASCEN	00457	SAZIM	63055	SCELTME	63134
SOEC	63005	SECONOS	63140	SELEV	63056
SIOERTIME	63012	SIGNCHECK	00210	SIN	00525
SINORIENT	63064	SINAZEL	63066	SKIP	63331
SRA	63004	SRAOITIME	63136	STATE1	00263
STATE2	00270	STATE3	00276	STATE4	00304
STATEMENT1	00247	STATEMENT2	00255	STATEMENT3	00316
STATEMENT4	00332	STATEMENT5	00345	STATEMENT6	00361
STATEMENT7	00374	STATEMENT8	00407	STATEMENT9	00423
SYNCTIMING	63542	SYSCOMREG1	63452	SYSCOMREG2	63453
SYSCOMREG3	63454	SYSCOMREG4	63455	SYSCOMREG5	63456
SYSCOMREG6	63457	SYSENTRIES	77600	SYSNAMES	77700
SYSTAT1	63313	SYSTAT2	63314	SYSTATO	63315
TIMECORR	63107	TIMEOOE	63103	TIMEP	63435
TIMETOHOLO	63520	TRUERANGE	63063	TRUEIME	63132
TTYSTATUS	63111	TWOPI	00132	TWOSECOOP	63017
VELOFLIGHT	63335	VIZOEC1	63014	VIZOEC2	63016
VIZRA1	63013	VIZRA2	63015	WFORO	63432
WFAOO	63450	WFFREQ	63333	WHENCE	00222
WHITHER	00072	YEARMONTH	63147	YRTRAN	63327
ZRTRAN	63330				

END OF LISTING

SPURT OUTPUT NO. 212

MATHIASSEN#2/17/65

FXRADEC

LABEL	LOC	LABEL	LOC	LABEL	LOC
FXRADEC	00000	MSTART	00002	ISTART	00005
NEXTQUERY	00014	QUESTMARK	00021	HOLUP	00026
HOLUP2	00044	NEXTLETTER	00053	ACCEPTAO	00061
FOA	00063	WHITHER	00072	NOMORE	00101
ACCEPTR	00103	RAOOR	00111	ACCEPTOEC	00112
ACECAOR	00131	TWOPI	00132	COSOC	00133
ACCEPTRHO	00134	ACCRAOOT	00142	RAOOTAOR	00153
PURERAOOT	00154	ACCOCOOT	00155	OECDOTAOR	00163
ACCRHOOT	00164	OEGTOROV	00172	OIVIOENO	00200
SIGNCHECK	00210	OESTINY	00212	0360B20	00214
REVIB27	00215	OEGTORAO	00216	WHENCE	00222
FATE	00225	OEGRAO	00227	ERROR	00230
QUESTION1	00233	STATEMENT1	00247	STATEMENT2	00255
STATE1	00263	STATE2	00270	STATE3	00276
STATE4	00304	QUESTION3	00314	STATEMENT3	00316
QUESTION4	00330	STATEMENT4	00332	QUESTIONS	00343
STATEMENTS	00345	QUESTION6	00357	STATEMENT6	00361
QUESTION7	00372	STATEMENT7	00374	QUESTION8	00405
STATEMENT8	00407	QUESTION9	00421	STATEMENT9	00423
MORON	00434	IOIOT	00436	ANSWER1	00452
RIGHTASC	00456	RIGHTASCEN	00457	ANSWER2	00460
DECLIN	00464	ANSWER3	00465	CHOICE	00467
ANSWER4	00470	MYRAOIUS	00474	ANSWERS	00475
MYRAOOT	00501	ANSWER6	00502	MYOECOOT	00506
ANSWER7	00507	MYRHOOOT	00513	COS	00514
SIN	00525	AS\$S\$1111	00634	AS\$S\$1112	00635
IOICELCOR	63000	IO2CELCO	63001	RA	63002
DEC	63003	SRA	63004	SOEC	63005
RAOIUS	63006	RAOOT	63007	OECDOT	63010
RAOIUSOOT	63011	SIOERTIME	63012	VIZRAI	63013
VIZOEC1	63014	VIZRA2	63015	VIZOEC2	63016
TWOSECOOP	63017	IOIRAOCOR	63050	102RAOCOR	63051
RANGE	63052	AZIM	63053	ELEV	63054
SAZIM	63055	SELEV	63056	CRANGE	63057
CAZIM	63060	CELEV	63061	RANGEOOT	63062
TRUERANGE	63063	SINORIENT	63064	COSORIENT	63065
SINAZEL	63066	COSAZEL	63070	ACQAZIM	63071
ACQEV	63075	FRAMESIZE	63101	RAOIOMETER	63102
TIMEMOEE	63103	FIRSTELEV	63104	ASTRORA	63105
ASTROEC	63106	TIMECORR	63107	KYBROLEVEL	63110
TYSTATUS	63111	RECOROSIZE	63112	CELBOOY	63113
IOITIME	63130	IO2TIME	63131	TRUETIME	63132
CELTME	63133	SCELTIME	63134	CONVERTIME	63135
SRAOTIME	63136	HOURLMINUTE	63137	SECONOS	63140
OSECONOS	63141	ACTUALTIME	63142	ESTSHIFTED	63143
GMTSHIFTED	63144	GMTMOO24	63145	BLASTOFF	63146
YEARMONTH	63147	OAY	63150	HOUREG	63151
MINREG	63152	FIRSTTHRU	63153	OUMSECTTG	63154
RECROSMTC	63155	RELEASESW	63156	101RECRO	63210
102RECRO	63211	RECFILE	63212	101SYSPAR	63310
102SYSPAR	63311	RAARMODE	63312	SYSTAT1	63313

SPURT OUTPUT NO. 212

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MATHIASSEN*2/17/65

FXRAOEC

LABEL	LOC	LABEL	LOC	LABEL	LOC
SYSTAT2	63314	SYSTATO	63315	OELTATEE	63316
FREQUENCY	63317	LONGITUDE	63320	GEOETLAT	63321
GEOENLAT	63322	EQUATOR	63323	POLE	63324
AZIMOVER	63325	HEIGHT	63326	YRTRAN	63327
ZRTRAN	63330	SKIP	63331	MSFREQ	63332
WFFREQ	63333	MAINSWITCH	63334	VELOFLIGHT	63335
LSPERAU	63336	FLATTENING	63337	NMPERAU	63340
AUPEREQUAT	63341	KMPERNM	63342	EXPNAME	63350
IOIENTPNT	63410	IOZENTPNT	63411	MCPGM	63412
INTER	63413	COCON	63414	RECR0	63415
AOSCN	63416	AESCN	63417	CORCT	63420
OYOMP	63421	CHCOR	63422	PRLOG	63423
CELCOMPGM	63424	OATANALYZE	63425	INTERCOM	63426
ACQUI	63427	ROMTR	63430	CHPAR	63431
WFORO	63432	ROXXX	63433	PLANP	63434
TIMEP	63435	PLOTP	63436	IDIRADIO	63440
IO2RAOIO	63441	AZIMAOO	63442	ELEVADD	63443
OOPPAOO	63444	RANGEAOO	63445	INAZIMADD	63446
INELEVAOO	63447	WFAOO	63450	MILLSTNADD	63451
SYSCOMREG1	63452	SYSCOMREG2	63453	SYSCOMREG3	63454
SYSCOMREG4	63455	SYSCOMREG5	63456	SYSCOMREG6	63457
INTERLCKSW	63460	PREVIOUSTH	63461	BODYSIZE	63462
AZELBXSCAN	63500	AZMTHSCAN	63501	ELVTNSCAN	63502
RAOGBXSCAN	63503	RASCINSCAN	63504	DECLINSCAN	63505
ROTATERAON	63506	ROTATEREBX	63507	ROTATERDBX	63510
HOLONOHLO	63511	AZIMOFFSET	63512	ELEVOFFSET	63513
RAOFFSET	63514	OECCOFFSET	63515	CRSSOFFSET	63516
ALNGOFFSET	63517	TIMETOHOLO	63520	PERTODELEV	63521
ARCOFELEV	63522	PERIOOAZIM	63523	ARCOFAZIM	63524
PERIOOEC	63525	ARCOFOEC	63526	PERIODRA	63527
ARCOFRA	63530	RAOECOTIME	63531	AZELOTIME	63532
RAOIORA	63540	RAOIOOEC	63541	SYNCTIMING	63542
IO3RAOIO	63776	IO4RAOIO	63777	AZIMOUT	64000
IO5RAOIO	64776	IO6RAOIO	64777	ELEVOUT	65000
IO7RAOIO	65776	IO8RAOIO	65777	DOPPOUT	66000
IO9RAOIO	66776	IO10RAOIO	66777	RECAZIM	67000
IO11RAOIO	67776	IO12RAOIO	67777	RECELEV	70000
IO13RAOIO	70775	IO14RAOIO	70776	RANGEOUT	70777
MCPFILLER	71000	IO15RAOIO	71776	IO16RADIO	71777
INTERAZIM	72000	IO17RAOIO	72776	IO18RADIO	72777
INTERELEV	73000	IO19RAOIO	73776	IO20RADIO	73777
INTEROOPP	74000	IO21RAOIO	74776	IO22RADIO	74777
AZIMIN	75000	IO23RAOIO	75776	IO24RADIO	75777
ELEVIN	76000	IO25RAOIO	76775	IO26RADIO	76776
INTERRANGE	76777	IO1SYSENT	77576	IO2SYSENT	77577
SYSENTRIES	77600	IO1SYSNAM	77676	IO2SYSNAM	77677
SYSNAMES	77700				

END OF LISTING

CAROS	LI	IO	LABEL	TA	STATEMENT	LOC	F	JKB	Y	NOTES
.	C0000		PLANNER	PROGRAM	J00*6/25/65	00000	00006	00002		
.	C0001		PLANNER	U-TAG	PLRUN*PLINIT	00001	25210	62325		
.	C0002		PLINIT	FO	I*PLANP	00002	61000	00000		
.	C0003		PLINIT	ENTRY		00003	10030	63054		
.	C0004		PLINIT	PUT	W(ELEV)*W(FIRSTELEV)	00004	14030	63104		
.	C0005		PLRUN	EXIT		00005	61010	00002		
.	C0006		PLRUN	ENTRY		00006	61000	00000		
.	C0007		PLRUN	JP	\$*2*KEY2	00007	61200	00011		
.	C0010		PLRUN	EXIT		00010	61010	00006		
.	C0011		PLRUN	ENT	Q*W(FIRSTELEV)	00011	10030	63104		OLO EL IN Q
.	C0012		PLRUN	ENT	A*W(ELEV)	00012	11030	63054		
.	C0013		PLRUN	STR	A*W(FIRSTELEV)*QNEG	00013	15330	63104		
.	C0014		PLRUN	JP	ELOPOPOS	00014	61000	00017		
.	C0015		PLRUN	JP	RIS*ELEV	00015	60600	00034		
.	C0016		PLRUN	EXIT		00016	61010	00006		
.	C0017		PLRUN	JP	L(PLRUN)*APOS	00017	60610	00006		BOTH NEG NO RISE YET
.	C0020		SETTING	RJP	FIGTIME	00020	65000	00071		BOTH POS NO SET YET
.	C0021		SETTING	MOVE	3*ANS*ST	00021	10030	00062		WHAT IS TRUE TIME
.	C0022		SETTING			00022	14030	00052		
.	C0023		SETTING			00023	10030	00063		
.	C0024		SETTING			00024	14030	00053		
.	C0025		SETTING			00025	10030	00064		
.	C0026		SETTING			00026	14030	00054		
.	C0027		SETTING			00027	65020	63423		
.	C0028		SETTING			00028	00005	00050		
.	C0029		SETTING			00029	00002	77745		
.	C0030		SETTING			00030	12000	00000		
.	C0031		SETTING			00031	61010	00006		
.	C0032		SETTING			00032	65000	00071		
.	C0033		SETTING			00033	10030	00062		
.	C0034		SETTING			00034	14030	00057		
.	C0035		SETTING			00035	10030	00063		
.	C0036		SETTING			00036	14030	00060		
.	C0037		SETTING			00037	10030	00064		
.	C0038		SETTING			00038	14030	00061		
.	C0039		SETTING			00039	65020	63423		
.	C0040		SETTING			00040	00005	00055		
.	C0041		SETTING			00041	00002	77745		
.	C0042		SETTING			00042	12000	00000		
.	C0043		SETTING			00043	61010	00006		
.	C0044		SETTING			00044	30123	10506		
.	C0045		SETTING			00045	31050	50505		
.	C0046		SETTING			00046	00000	00000		
.	C0047		SETTING			00047	27243	01205		
.	C0048		SETTING			00048	06310	50505		
.	C0049		SETTING			00049	00000	00000		
.	C0050		SETTING			00050	00000	00000		
.	C0051		SETTING			00051	00000	00000		
.	C0052		SETTING			00052	00000	00000		
.	C0053		SETTING			00053	00000	00000		
.	C0054		SETTING			00054	00000	00000		
.	C0055		SETTING			00055	00000	00000		
.	C0056		SETTING			00056	00000	00000		
.	C0057		SETTING			00057	00000	00000		
.	C0058		SETTING			00058	00000	00000		
.	C0059		SETTING			00059	00000	00000		
.	C0060		SETTING			00060	00000	00000		
.	C0061		SETTING			00061	00000	00000		
.	C0062		SETTING			00062	00000	00000		
.	C0063		SETTING			00063	00000	00000		
.	C0064		SETTING			00064	00000	00000		
.	C0065		SETTING			00065	00000	00000		
.	C0066		SETTING			00066	00000	00000		
.	C0067		SETTING			00067	00000	00000		
.	C0068		SETTING			00068	00000	00000		
.	C0069		SETTING			00069	00000	00000		
.	C0070		SETTING			00070	00000	00000		
.	C0071		SETTING			00071	61000	00000		

PLANNER

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CARDS	L1	IO	LABEL	TA	STATEMENT	LOC	F	JKB	Y	NOTES
.	00050			ENT	Q*W(CELTIMEI	00072	10030	63133		
.	00051			MUL	240	00073	22000	00030		EXTRACT HOURS
.	00052			STR	Q*W(TEMP1	00074	14030	00070		
.	00053			LSH	AQ*2	00075	07000	00002		
.	00054			STR	A*W(HH)	00076	15030	00065		
.	00055			ENT	A*W(TEMP1	00077	11030	00070		
.	00056			SEL	CL*6000000000	00100	52030	00143		
.	00057			STR	A*Q	00101	15000	00000		
.	00060			MUL	600	00102	22000	00074		
.	00061			STR	Q*W(TEMP1	00103	14030	00070		
.	00062			LSH	AQ*2	00104	07000	00002		
.	00063			STR	A*W(HH)	00105	15030	00066		
.	00064			ENT	A*W(TEMP1	00106	11030	00070		
.	00065			SEL	CL*6000000000	00107	52030	00143		
.	00066			STR	A*Q	00110	15000	00000		
.	00067			MUL	600	00111	22000	00074		
.	00070			LSH	AQ*2*QPOS	00112	07200	00002		
.	00071			AOO	A*1	00113	20000	00001		
.	00072			STR	A*W(SS)	00114	15030	00067		
.	00073			SUB	A*600*AZERO	00115	21400	00074		
.	00074			JP	CHECKMIN	00116	61000	00121		
.	00075			STR	A*W(SS)	00117	15030	00067		
.	00076			RPL	Y+1*LL(HH)	00120	36010	00066		
.	00077		CHECKMIN	ENT	A*W(HH)	00121	11030	00066		
.	00100			SUB	A*600*AZERO	00122	21400	00074		
.	00101			JP	\$+3	00123	61000	00126		
.	00102			STR	A*W(HH)	00124	15030	00066		
.	00103			RPL	Y+1*W(HH)	00125	36030	00065		
.	00104			CL	B3*	00126	12300	00000		
.	00105		LOOP	CL	A*	00127	11000	00000		
.	00106			ENT	Q*W(HH+B3)	00130	10033	00065		
.	00107			OIV	100	00131	23000	00012		
.	00110			AOO	A*60	00132	20000	00060		
.	00111			AOO	Q*60	00133	26000	00060		
.	00112			LSH	A*240	00134	06000	00030		
.	00113			LSH	AQ*240	00135	07000	00030		
.	00114			STR	Q*W(ANS+B3)	00136	14033	00062		
.	00115			BSK	B3*2	00137	71300	00002		
.	00116			JP	LOOP	00140	61000	00127		
.	00117			EXIT		00141	61010	00071		
.	00120			NO-OP		00142	12000	00000		DUMMY
.						00143	60000	00000		

END OF LISTING

JD06/25/65

PLANNER

LABEL	LOC	LABEL	LOC	LABEL	LOC
A\$\$\$\$1111	00143	ACQAZIM	63071	ACQLEV	63075
ACQUI	63427	ACTUALTIME	63142	AOSCN	63416
AESCN	63417	ALNGDOFFSET	63517	ANS	00062
ARCOFAZIM	63524	ARCOFOEC	63526	ARCOFELEV	63522
ARCOFRA	63530	ASTRODEC	63106	ASTRODR	63105
AUPEREQUAT	63341	AZELOTIME	63532	AZELBXSCAN	63500
AZIM	63053	AZIMDOFFSET	63512	AZIMOUT	64000
AZIMOVER	63325	AZIMAOD	63442	AZIMIN	75000
AZIMTHSCAN	63501	BOOYSIZE	63462	BLASTOFF	63146
COCON	63414	CONVERTIME	63135	CORCT	63420
COSDRIENT	63065	COSAZEL	63070	CAZIM	63060
CELBODY	63113	CELCOMPGR	63424	CELEV	63061
CELTIME	63133	CHCOR	63422	CHECKMIN	00121
CHPAR	63431	CRANGE	63057	CRSSDOFFSET	63516
DOPPDUT	66000	DDPPAOD	63444	DATANALYZE	63425
OAY	63150	DEC	63003	DECOFFSET	63515
DECOOT	63010	DECLINSCAN	63505	DELTATEE	63316
DSECONOS	63141	OUIMSECTTG	63154	OYDMP	63421
ELDLDPOS	00017	ELEV	63054	ELEVDOFFSET	63513
ELEVOUT	65000	ELEVA00	63443	ELEVIN	76000
EVTNSCAN	63502	EQUATOR	63323	ESTSHIFTED	63143
EXPNAME	63350	FIGTIME	00071	FIRSTELEV	63104
FIRSTTHRU	63153	FLATTENING	63337	FRAMESIZE	63101
FREQUENCY	63317	GEOCENLAT	63322	GEDDELAT	63321
GMTMODU24	63145	GMTSHIFTED	63144	HOLDNHDOL	63511
HOURMINUTE	63137	HOURREG	63151	HEIGHT	63326
HH	00065	ID10RA010	66777	ID11RA010	67776
ID12RA010	67777	ID13RA010	70775	ID14RA010	70776
ID15RA010	71776	ID16RA010	71777	ID17RA010	72776
ID18RA010	72777	ID19RA010	73776	ID1CELCOR	63000
ID1ENTPNT	63410	ID1RA0COR	63050	ID1RA010	63440
ID1RECR0	63210	ID1SYSENT	77576	ID1SYSNAM	77676
ID1SYSPAR	63310	ID1TIME	63130	ID20RA010	73777
ID21RA010	74776	ID22RA010	74777	ID23RA010	75776
ID24RA010	75777	ID25RA010	76775	ID26RA010	76776
ID2CELCOR	63001	ID2ENTPNT	63411	ID2RACDR	63051
ID2RAD10	63441	ID2RECR0	63211	ID2SYSENT	77577
ID2SYSNAM	77677	ID2SYSPAR	63311	ID2TIME	63131
ID3RAD10	63776	ID4RA010	63777	ID5RAD10	64776
ID6RA010	64777	ID7RA010	65776	ID8RA010	65777
ID9RA010	66776	INAZIMA00	63446	INLEVA00	63447
INTER	63413	INTERAZIM	72000	INTERCOM	63426
INTERODPP	74000	INTERELEV	73000	INTERLCKSW	63460
INTERRANGE	76777	KMPERNM	63342	KYBRDLEVEL	63110
LOOP	00127	LONGITUDE	63320	LSPERAU	63336
MAINSWITCH	63334	MCPFILLER	71000	MCPGM	63412
MILLSTNADD	63451	MINREG	63152	MW	00066
MSFREQ	63332	MPERAU	63340	PDLE	63324
PERIODAZIM	63523	PERIODDEC	63525	PERIDDELEV	63521
PERIODRA	63527	PLOTTP	63436	PLANNER	00000
PLAMP	63434	PLINIT	00002	PLRUN	00006

..... SPURT OUTPUT NO. 211 J00*6/25/65

PLANNER

LABEL	LOC	LABEL	LOC	LABEL	LOC
PREVIOUSM	63461	PRLOG	63423	ROTATEAEBX	63507
ROTATERAON	63506	ROTATEROBX	63510	RA	63002
RAOFFSET	63514	RAOOT	63007	RAOARMOE	63312
RAOCBXSCAN	63503	RAOECOTIME	63531	RAIOOEC	63541
RAIOMETER	63102	RAOIORA	63540	RAIUS	63006
RAIUSOOT	63011	RANGE	63052	RANGEOUT	70777
RANGEAOO	63445	RANGEOOT	63062	RASCTNSCAN	63504
ROMTR	63430	ROXXX	63433	RECOROSIZE	63112
RECAZIM	67000	RECELEV	70000	RECFILE	63212
RECRO	63415	RECROSWTCH	63155	RELEASESM	63156
RISSET	00034	RT	00057	SAYRISE	00055
SAYSET	00050	SAZIM	63055	SCELTME	63134
SOEC	63005	SECONOS	63140	SELEV	63056
SETTING	00020	SIOERTIME	63012	SINORIENT	63064
SINAZEL	63066	SKIP	63331	SRA	63004
SRAOTIME	63136	SS	00087	ST	00052
SYNCTIMING	63542	SYSOMREG1	63452	SYSOMREG2	63453
SYSOMREG3	63454	SYSOMREG4	63455	SYSOMREG5	63456
SYSOMREG6	63457	SYSENTRIES	77600	SYSNAMES	77700
SYSSTAT1	63313	SYSTAT2	63314	SYSTATO	63315
TEMP	00070	TIMECORR	63107	TIMEMOOE	63103
TIMEP	63435	TIMEOTOHLO	63520	TRUERANGE	63063
TRUETIME	63132	TTYSTATUS	63111	TWOSECOOP	63017
VELOFLIGHT	63335	VIZOEC1	63014	VIZOEC2	63016
VIZRA1	63013	VIZRA2	63015	WFORO	63432
WFAOO	63450	WFFREQ	63333	YEARMONTH	63147
YRTRAN	63327	ZRTRAN	63330		

END OF LISTING

J00•6/25/65

PLANNER

LABEL	LOC	LABEL	LOC	LABEL	LOC
PLANNER	00000	PLINIT	00002	PLRUN	00006
ELOPOPOS	00017	SETTING	00020	RSET	00034
SAYSET	00050	ST	00052	SAYRISE	00055
RT	00057	ANS	00062	HH	00065
MM	00066	SS	00067	TEMP	00070
FIGTIME	00071	CHECKMIN	00121	LOOP	00127
AS\$S\$1111	00143	10ICELCOR	00121	ID2CELCOR	63001
RA	63002	DEC	63003	SRA	63004
SOEC	63005	RAIUS	63006	RAOOT	63007
DECOOT	63010	RADIUSOOT	63011	STOERTIME	63012
VIZRA1	63013	VIZOEC1	63014	VIZRA2	63015
VIZOEC2	63016	TWOSECOOP	63017	IDIRAOCOR	63050
ID2RAOCOR	63051	RANGE	63052	AZIM	63053
ELEV	63054	SAZIM	63055	SELEV	63056
CRANGE	63057	CAZIM	63060	CELEV	63061
RANGEOOT	63062	TRUERANGE	63063	SINORIENT	63064
COSORTIENT	63065	SINAZEL	63066	COSAZEL	63070
ACQAZIM	63071	ACQELV	63075	FRAMESIZE	63101
RADIOMETER	63102	TIMEMODE	63103	FIRSTELEV	63104
ASTRORA	63105	ASTRODEC	63106	TIMECORR	63107
KYBROLEVEL	63110	TTYSTATUS	63111	RECOROSIZE	63112
CELBOOY	63113	IDTIME	63130	IDTIME	63131
TRUETIME	63132	CELTIME	63133	SCELTIME	63134
CONVERTIME	63135	SRAOTIME	63136	HOURLMINUTE	63137
SECONOS	63140	DSECONDS	63141	ACTUALTIME	63142
ESTSHIFTED	63143	GMTSHIFTED	63144	ACTUALTIME	63145
BLASTOFF	63146	YEARMONTH	63147	DAY	63150
HOUREG	63151	MINREG	63152	FIRSTTHRU	63153
OUNSECTTG	63154	RECROSWTCH	63155	RELEASESW	63156
101RECRD	63210	IOZRECO	63211	RECFILE	63212
101SYSPAR	63310	IOZSYSPAR	63311	RADARMODE	63312
SYSTAT1	63313	SYSTAT2	63314	SYSTATD	63315
DELTATEE	63316	FREQUENCY	63317	LONGITUOE	63320
GEOETLAT	63321	GEOENLAT	63322	EQUATOR	63323
POLE	63324	AZIMOVER	63325	HEIGHT	63326
YRTRAN	63327	ZRTRAN	63330	SKIP	63331
MSFREQ	63332	WFFREQ	63333	MAINSWITCH	63334
VELOFLIGHT	63335	LSPERAU	63336	FLATTENING	63337
NMPERAU	63340	AUPEREQUAT	63341	KMPERNM	63342
EXPNAME	63350	IOIENTPNT	63410	IOENTPNT	63411
MCPGM	63412	INTER	63413	COCON	63414
RECRO	63415	AOSCN	63416	AESCN	63417
CORCT	63420	OYDMP	63421	CHCOR	63422
PRLOG	63423	CELCOMPGM	63424	DATANALYZE	63425
INTERCOM	63426	ACQUI	63427	ROMTR	63430
CHPAR	63431	WFORO	63432	ROXX	63433
PLANP	63434	TIMEP	63435	PLOTP	63436
101RA010	63440	IOZRAD10	63441	AZIMAOD	63442
ELEVA00	63443	OOPPADO	63444	RANGEAOD	63445
INAZ1MAOD	63446	INELEVA00	63447	WFAOD	63450
MILLSTNAOD	63451	SYSOMREG1	63452	SYSOMREG2	63453

SPURT OUTPUT NO. 212

JDD*6/25/65

PLANNER

LABEL	LDC	LABEL	LOC	LABEL	LOC
SYSOMREG3	63454	SYSOMREG4	63455	SYSOMREG5	63456
SYSOMREG6	63457	INTERLCKSW	63460	PREVIDUSTH	63461
BDOYSIZE	63462	AZELBXSCAN	63500	AZMTHSCAN	63501
ELVTNSCAN	63502	RAOCBXSCAN	63503	RASCTNSCAN	63504
OECLINSCAN	63505	ROTATERADN	63506	ROTATEAEBX	63507
ROTATERDBX	63510	HOLONOHOLD	63511	AZIMOFFSET	63512
ELEVOFFSET	63513	RADFFSET	63514	DECOFFSET	63515
CRSSOFFSET	63516	ALNGDOFFSET	63517	TIMETOHOLD	63520
PERIDOELEV	63521	ARCDFFLEV	63522	PERIDOOAZIM	63523
ARCOFAZIM	63524	PERIDOOEC	63525	ARCOFOEC	63526
PERIOORA	63527	ARCOFRA	63530	RAOECDTIME	63531
AZELOTIME	63532	RAOIDRA	63540	RAOIDOEC	63541
SYNCTIMING	63542	I03RADIO	63776	I04RAOIO	63777
AZIMOUT	64000	ID5RAOIO	64776	ID6RAOIO	64777
ELEVOUT	65000	I07RAOIO	65776	ID8RAOIO	65777
OOPPOUT	66000	I09RAOIO	66776	I010RAOIO	66777
RECAZIM	67000	ID11RAOIO	67776	I012RAOIO	67777
RECELEV	70000	I013RAOIO	70775	I014RAOIO	70776
RANGEDUT	70777	MCPFILLER	71000	I015RAOIO	71776
I016RADIO	71777	INTERAZIM	72000	I017RADIO	72776
I01BRAOIO	72777	INTERELEV	73000	I019RADIO	73776
I02DRADIO	73777	INTERDOPP	74000	I021RADIO	74776
I022RAOIO	74777	AZIMIN	75000	I023RAOIO	75776
I024RAOIO	75777	ELEVIN	76000	I025RAOIO	76775
I026RADIO	76776	INTERANGE	76777	I01SYSENT	77576
I02SYSENT	77577	SYSENTRIES	77600	I01SYSNAM	77676
I02SYSNAM	77677	SYSNAMES	77700		

END OF LISTING

..... SPURT OUTPUT NO. 210
 PLOTP R.TEOSTE*4/9/65

CARD	IO	LABEL	TA STATEMENT	LOC	F	JKB	Y	NOTES
0000		PLOTP	PROGRAM R.TEOSTE*4/9/65	0000	00216	00002		
0001		PLOT	U-TAG PLOTWORK*PLOT(NIT	0001	25212	43125		
0002			F0 1*PLOTP	0002	61000	00000		
0003		PLOTIN(T	ENTRY	0003	11730	63112		IS SYS CYCLING AT H(SPO
0004			ENT A*(RECOROSIZE)*ANEQ	0004	61000	00011		NO
0005			JP GOPLOTGO	0005	16020	63436		PLOT NOT TO OPERATE
0006			CL U(PLOTP)	0006	10000	60000		SET TO RIL
0007			PUT 60000*U(521	0007	14020	00052		BACK TO MCP
0010			EX(T	0010	61010	00002		SET UP WORKING ENTRY
0011		GOPLOTGO	PUT U(PLOT)*U(PLOTP)	0011	10020	00000		SET INTERRUPT REGISTER
0012			ENT A*(PLOTTRJP)	0012	14020	63436		
0013			STR A*(521	0013	11030	00065		
0014			CL L(PLOTB)	0014	15030	00052		
0015			ENT A*(L(SYSTAT1))*APOS	0015	16010	00156		
0016			JP L(PLOTINIT)	0016	11650	63313		
0017			RJP U(INTERCOM)	0017	61010	00002		
0020			U-TAG PLOTQUEST*PLOTANSW	0020	65020	63426		CALIBRATION PROCEDURE
0021			ENT A*(PCALCOOE)*ANOT	0021	00032	00050		
0022			JP ADJSTOP	0022	11530	00052		
0023			STR A*(L(PLOTB)	0023	61000	00027		
0024			RJP U(INTERCOM)	0024	15010	00156		
0025			U-TAG PLOTQUEST*PLOTANSW	0025	65020	63426		
0026		ADJSTOP	PUT 2*L(PLOTB)	0026	00053	00050		
0027			JP L(PLOT(NIT)	0027	10000	00002		
0030		PLOTQUEST	F0 0*A	0030	14010	00156		
0031			-0 \$+1	0031	61010	00002		
0032			F0 0*00 YOU WANT TO ADJUST STR(P CHART00034	0032	06050	50505		
			REORDER (Y OR N)	0033	77777	00034		
				0034	11240	53624		
				0035	32053	40623		
				0036	31053	12405		
				0037	06111	73230		
				0040	31053	03127		
				0041	16250	51015		
				0042	06273	10527		
				0043	12102	42711		
				0044	12270	55136		
				0045	05242	70523		
				0046	40050	50505		
				0047	77777	77777		
				0050	36050	50505		
				0051	00001	00052		
				0052	00000	00001		
				0053	06050	50505		
				0054	77777	00055		
				0055	10062	72716		
				0056	06141	20527		
				0057	12313	22723		
				0060	05312	40530		
				0061	31242	50506		

CAROS	LI 10 LABEL	TA STATEMENT	LOC	F	JKB	Y	NOTES
•	00124	STR A*U(1121	00146	15020	00112		
•	00125	IN C12*W(1121*MONITOR	00147	75530	00112		
•	00126	EX-FACT C5*2540404040	00150	13270	00241		
•	00127	JP ENDPLOT	00151	61000	00134		
•	00130	PLOTSTOP	00152	13270	00242		
•	00131	JP ENDPLOT	00153	61000	00134		
•	00132	PLOTA	00154	00000	00000		
•	00133	PLOTQ	00155	00000	00000		
•	00134	PLOTB	00156	00000	00000		
•	00135	ACJUSTCASE	00157	11030	00210		
•	00136	SUB A*2*AZERO	00160	21400	00002		
•	00137	RPL Y*1*WIAOJ11*SKIP	00161	36130	00210		
•	00140	CL WIAOJ11	00162	16030	00210		
•	00141	ENT B7*L1AOJ11	00163	12710	00210		
•	00142	EX-FACT C5*W(AOJTABLE+B71	00164	13277	00166		
•	00143	JP L1PLOTWORK1	00165	61010	00216		
•	00144	ADJTABLE	00166	25000	00000		
•	00145	2540404040	00167	25404	04040		
•	00146	2577777777	00170	25777	77777		
•	00147	CALCASE	00171	11030	00207		
•	00150	SUB A*W(AOJTABLE+21*ANOT	00172	21530	00170		
•	00151	JP PLOTENO	00173	61000	00202		
•	00152	ENT A*W1PLOTWOR011	00174	11030	00207		
•	00153	A00 A*W(PLITINCREM1	00175	20030	00201		
•	00154	STR A*W1PLOTWOR011	00176	15030	00207		
•	00155	EX-FACT C5*W1PLOTWOR011	00177	13270	00207		
•	00156	JP L1PLOTWORK1	00200	61010	00216		
•	00157	PLITINCREM	00201	00010	10101		
•	00160	PLOTENO	00202	11030	00232		
•	00161	STR A*W1PLOTWOR011	00203	15030	00207		
•	00162	PUT O*L1PLOTB1	00204	10000	00000		
•	00163	JP L1PLOTWORK1	00205	14010	00156		
•	00164	PLOTWOR01	00206	61010	00216		
•	00165	A0J1	00207	24767	67677		
•	00166	PLOTMIO	00210	00000	00000		
•	00167	ENT A*U(1121	00211	11020	00112		
•	00170	SUB A*U1INELEVA001	00212	21020	63447		
•	00171	SUB A*2490*AZERO	00213	21400	00371		
•	00172	JP PLOTVALUES	00214	61000	00101		
•	00173	JP TIMEMARK1	00215	61000	00144		
•	00174	ENT A*U(1121	00216	61000	00000		
•	00175	ENT B7*L1PLOTB1	00217	12710	00156		
•	00176	JP L1PLOTJPTAB+B71	00220	61017	00141		
•	00177	ENT A*U1INELEVA001	00221	11020	63447		
•	00200	A00 A*90	00222	20000	00011		
•	00201	STR A*U(1121	00223	15020	00112		
•	00202	ENT A*U(SECNO51	00224	11020	63140		
•	00203	SUB A*4*ANOT	00225	21500	00004		
•	00204	JP PLOTPATCH	00226	61000	00233		
•	00205	ENT A*L1PLOTWORK1	00227	11010	00216		
•	00206	STR A*L1PLOTINTER1	00230	15010	00066		
•	00207	JP ENDPLOT-1	00231	61000	00133		
•	00207	PLOTWOR011	00232	24767	67677		

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..... SPURT OUTPUT NO. 210 .....
PLOT R. TEOSTE*4/9/65
CAROS L1 IO LABEL TA STATEMENT LOC F JKR Y NOTES
* 00210 PLOTPATCH EX-FCT C5*2540404040 00233 13270 00241
* 00211 ENT A*U(112) 00234 11020 00112
* 00212 A00 A*500 00235 20000 00062
* 00213 STR A*U(112) 00236 15020 00112
* 00214 JP L(PLOTWORK) 00237 61010 00216
* 00215 RESERVE 1 00240 00000 00000
00241 25404 04040
00242 24404 04040

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END OF LISTING

R. TEOSTE*4/9/65

PLOT

LABEL	LOC	LABEL	LOC	LABEL	LOC
A\$\$\$\$1111	00241	A\$\$\$\$1112	00242	ACQAZIM	63071
ACQLEV	63075	ACQUI	63427	ACTUALTIME	63142
AQJ1	00210	AQJSTOP	00027	AQJTABLE	00166
AQJSTCASE	00157	AQJSCN	63416	AESC	63417
ALNGOFFSET	63517	ARCOFAZIM	63524	ARCOFOEC	63526
ARCOFELEV	63522	ARCOFRA	63530	ASTROOEC	63106
ASTORA	63105	AUPEREQUAT	63341	AZELOTIME	63532
AZELBXSCAN	63500	AZIM	63053	AZIMOFFSET	63512
AZIMOUT	64000	AZIMOVER	63325	AZIMADD	63442
AZIMIN	75000	AZIMHSCAN	63501	BOOYSIZE	63462
BLASTOFF	63146	COCON	63414	CONVERTIME	63135
CORCT	63420	COSORIENT	63065	COSAZEL	63070
CALCASE	00171	CAZIM	63060	CELBOOY	63113
CELCOMP	63424	CELEV	63061	CELTIME	63133
CHCOR	63422	CHPAR	63431	CRANGE	63057
CRSSOFFSET	63516	OOPPOUT	66000	OOPADD	63444
OATANALYZE	63425	OAY	63150	OEC	63003
OECOFFSET	63515	OECOOT	63010	OECINSCAN	63505
OELTATEE	63316	OSECNOS	63141	OUHSECTG	63154
DYOMP	63421	ELEV	63054	ELEVOFFSET	63513
ELEVOUT	65000	ELEVA00	63443	ELEVIN	76000
ELVTNSCAN	63502	ENOPLOT	00134	EQUATOR	63323
ESTSHIFTEO	63143	EXPNAME	63350	FRAMELEV	63104
FIRSTTHRU	63153	FLATTENING	63337	FRAMESIZE	63101
FREQUENCY	63317	GOPLOTGO	00011	GEOCNLAT	63322
GEOOETLAT	63321	GHTMOU24	63145	GEOCNLAT	63144
HOLONOHOL	63511	HOURMINUTE	63137	HOURREG	63151
HEIGHT	63326	1010RA010	66777	1011RADIO	67776
1012RA010	67777	1013RA010	70775	1014RADIO	70776
1015RA010	71776	1016RA010	71777	1017RADIO	72776
1018RA010	72777	1019RA010	73776	1018RADIO	73777
1019RA010	73777	101RADCOR	63050	1019RADIO	73777
101RECR	63210	101SYSENT	77576	101SYSNAM	77676
101SYSPAR	63310	101TIME	63130	1020RADIO	73777
1021RA010	74776	1022RA010	74777	1023RADIO	75776
1024RA010	75777	1025RA010	76775	1026RADIO	76776
102CELCOR	63001	102ENTPNT	63411	1027RADIO	76776
102RA010	63441	102RECR	63211	1028RADIO	76776
102SYSNAM	77677	102SYSPAR	63311	1029RADIO	76776
103RA010	63776	104RA010	63777	1030RADIO	76776
106RA010	64777	107RA010	65776	104RADIO	64776
109RA010	66776	1NAZIMAO	63446	108RADIO	65777
INTER	63413	INTERAZIM	72000	1NELEVA00	63447
INTERDOPP	74000	INTERELEV	73000	INTERCOM	63426
INTERRANGE	76777	KMPERNM	63342	INTERLCKSW	63460
LONGITUOE	63320	LSPERAU	63336	KYBROLEVEL	63110
MCPFILLER	71000	MCPGM	63412	MAINSWITCH	63334
MINREG	63152	MSFREQ	63332	MILLSTNAO	63451
POLE	63324	PCALCODE	00052	NMPERAU	63340
PER1000EC	63525	PER100ELEV	63521	PER100AZIM	63523
PLOT	00000	PLOTA	00154	PER100RA	63527
				PLOTANSW	00050

SPURT OUTPUT NO. 211

R. TEOSTE*4/9/65

PLOT		PLOT		PLOT		PLOT	
LABEL	LOC	LABEL	LOC	LABEL	LOC	LABEL	LOC
PLOTB	00156	PLOTCASE	00221	PLOTENO	00202	PLOTENO	00202
PLOTERRORS	00105	PLOTBACK	00150	PLOTINIT	00202	PLOTINIT	00202
PLOTINTER	00066	PLOTJPTAB	00141	PLOTMIO	00211	PLOTMIO	00211
PLOTP	63436	PLOTPATCH	00233	PLOTQ	00155	PLOTQ	00155
PLOTQUEST	00032	PLOTQUEST	00053	PLOTRJP	00065	PLOTRJP	00065
PLOTSTOP	00152	PLOTVALUES	00101	PLOTWORO	00140	PLOTWORO	00140
PLOTWOR01	00207	PLOTWOR011	00232	PLOTWORK	00216	PLOTWORK	00216
PLANP	63434	PLITINCREM	00201	PREVIOUSM	63461	PREVIOUSM	63461
PRLOG	63423	ROTATEAEBX	63507	ROTATERAON	63506	ROTATERAON	63506
ROTATERORX	63510	RA	63002	RAOFFSET	63514	RAOFFSET	63514
RAOOT	63007	RAOARMODE	63312	RAOEBXSCAN	63503	RAOEBXSCAN	63503
RAOECOTIME	63531	RAOIOEC	63541	RAOIMETER	63102	RAOIMETER	63102
RAOIORA	63540	RAIUS	63006	RAOIUSOOT	63011	RAOIUSOOT	63011
RANGE	63052	RANGEOUT	70777	RANGEAOO	63445	RANGEAOO	63445
RANGE00T	63062	RASCINSCAN	63504	ROMTR	63430	ROMTR	63430
ROXXX	63433	RECOROSIZE	63112	RECAZIM	67000	RECAZIM	67000
RECELEV	70000	RECFILE	63212	RECRO	63415	RECRO	63415
RECROSWTCH	63155	RELEASESW	63156	SAZIM	63055	SAZIM	63055
SCELTIME	63134	SOEC	63005	SECONOS	63140	SECONOS	63140
SELEV	63056	SIOERTIME	63012	SINORIENT	63064	SINORIENT	63064
SINAZEL	63066	SKIP	63331	SRA	63004	SRA	63004
SRAOTIME	63136	SYNCTIMING	63542	SYSCOMREG1	63452	SYSCOMREG1	63452
SYSCOMREG2	63453	SYSCOMREG3	63454	SYSCOMREG4	63455	SYSCOMREG4	63455
SYSCOMREG5	63456	SYSCOMREG6	63457	SYSENTRIES	77600	SYSENTRIES	77600
SYSNAMES	77700	SYSTAT1	63313	SYSTAT2	63314	SYSTAT2	63314
SYSTAT0	63315	TIMECORR	63107	TIMEMOOE	63103	TIMEMOOE	63103
TIMEMARK1	00144	TIMEP	63435	TIMETOHOLO	63520	TIMETOHOLO	63520
TRUERANGE	63063	TRUETIME	63132	TTSTATUS	63111	TTSTATUS	63111
TWOSECOOP	63017	VELOFLIGHT	63335	VIZOEC1	63014	VIZOEC1	63014
VIZDEC2	63016	VIZRA1	63013	VIZRA2	63015	VIZRA2	63015
WFORO	63432	WFAOO	63450	WFFREQ	63333	WFFREQ	63333
YEARMONTH	63147	YRTRAN	63327	ZRTRAN	63330	ZRTRAN	63330

END OF LISTING

SPURT OUTPUT NO. 212

R. TEOSTE*4/9/65

PLOTP

LABEL	LOC	LABEL	LOC	LABEL	LOC
ROXXX	63433	PLANP	63434	TIMEP	63435
PLOTP	63436	IOIRADIO	63440	IO2RADIO	63441
AZIMADD	63442	ELEVAO	63443	ODPPAO	63444
RANGEADD	63445	INAZIMADD	63446	INELEVADD	63447
WFADD	63450	MILLSTNADO	63451	SYSOMREG1	63452
SYSOMREG2	63453	SYSOMREG3	63454	SYSOMREG4	63455
SYSOMREG5	63456	SYSOMREG6	63457	INTERLCKSW	63460
PREVIDUSTM	63461	BODYSIZE	63462	AZELBXSCAN	63500
AZMTHSCAN	63501	ELVTNSCAN	63502	RAOCBXSCAN	63503
RASCTNSCAN	63504	DECLINSCAN	63505	ROTATERAON	63506
ROTATEAEBX	63507	ROTATERDBX	63510	HOLONOHOLD	63511
AZIMOFFSET	63512	ELEVOFFSET	63513	RAOFFSET	63514
DECOFFSET	63515	CRSROFFSET	63516	ALNGOFFSET	63517
TIMETOHOLD	63520	PERIODELEV	63521	ARCOFELEV	63522
PERIODAZIM	63523	ARCOFAZIM	63524	PERIODDEC	63525
ARCOFDEC	63526	PERIODRA	63527	ARCOFRA	63530
RADCOOTIME	63531	AZELOTIME	63532	RADIORA	63540
RADIODEC	63541	SYNCTIMING	63542	IO3RADIO	63776
IO4RADIO	63777	AZIMOUT	64000	IO5RADIO	64776
IO6RADIO	64777	ELEVOUT	65000	IO7RADIO	65776
IO8RADIO	65777	DOPPOUT	66000	IO9RADIO	66776
IO10RADIO	66777	RECAZIM	67000	IO11RADIO	67776
IO12RADIO	67777	RECELEV	70000	IO13RADIO	70775
IO14RADIO	70776	RANGEOUT	70777	MCPFILLER	71000
IO15RADIO	71776	IO16RADIO	71777	INTERAZIM	72000
IO17RADIO	72776	IO18RADIO	72777	INTERELEV	73000
IO19RADIO	73776	IO20RADIO	73777	INTERDOPP	74000
IO21RADIO	74776	IO22RADIO	74777	AZIMIN	75000
IO23RADIO	75776	IO24RADIO	75777	ELEVIN	76000
IO25RADIO	76775	IO26RADIO	76776	INTERRANGE	76777
IO1SYSENT	77576	IO2SYSENT	77577	SYSENTRIES	77600
IO1SYSNAM	77676	IO2SYSNAM	77677	SYSNAMES	77700

END OF LISTING

CARDS	LL	ID	LABEL	TA	STATEMENT	LOC	F	JK8	Y	NOTES
•	COC00		LCGGING	PROGRAM	S-J.WHITE*06/29/65					
•	COC01		LCGGING	U-TAG	LOGWORK*LOGINIT	00000				
•	COC02			FC	I*PRLG	00001				
•	COC03		LCGINIT	ENTRY		00002				
•	COC04			RPT	6250*ADV	00003				
•	COC05			CL	W(STKPLBK)	00004				
•	COC06			CL	B5*	00005				
•	COC07			CL	B6*	00006				
•	COC10			ENT	A*W(FDPRUG)	00007				
•	COC11			STR	A*W(STACK01-2+B6)	00010				
•	COC12			ENT	B6*B6+280	00011				
•	COC13			BSK	B5*190	00012				
•	COC14			JP	\$-3	00013				
•	COC15			STR	A*W(EMRGAREA-2)	00014				
•	COC16			TERM	C3*OUTPUT	00015				
•	COC17			EXIT		00016				
•	COC20		LCGWRK	ENTRY		00017				
•	COC21			SIL		00020				
•	COC22			RJP	WKSAP	00021				
•	COC23			PUT	W(INTRGO)*W(23)	00022				SET INTERRUPT RETURN
•	COC24			CL	B5	00023				
•	COC25			ENT	B3*O(SAVER)	00024				
•	COC26			ENT	B4*L(SAVER)	00025				RESTORE INPUT INDEX
•	COC27			ENT	A*L(LOGWORK)	00026				RESTORE OUTPUT INDEX
•	COC30			STR	A*L(\$+1)	00027				SET FWA AND NO. WRDS REG.
•	COC31			PUT	W(O)*W(NOWROSEFWA)	00030				
•	COC32			RPL	Y+1*L(LOGWORK)	00031				
•	COC33			STR	A*L(\$+1)	00032				
•	COC34			PUT	W(O)*W(SBPSAP)	00033				
•	COC35			RPL	Y+1*L(LOGWORK)	00034				
•	COC36			ENT	A*W(CHANINACTV)*AZERO	00035				
•	COC40			ENT	A*LX(SBPSAP)*APOS	00036				IS THIS EMERGENCY DATA
•	COC41			JP	EMERQUT	00037				YES
•	COC42			ENT	A*L(RADIOMETER)*ANOT	00040				
•	COC43			JP	NORMP	00041				
•	COC44			ENT	A*UX(SBPSAP)*ANEG	00042				
•	COC45			JP	BUSY	00043				
•	COC46		NCRMP	ENT	A*O(STKPLBK*B3)*AZERO	00044				
•	COC47			ENT	B3*B3-1	00045				
•	COC50			ENT	A*L(STKPLBF*B3)	00046				
•	COC51			RJP	MOVEDATA	00047				PICK UP FWA OF BUF TO BE FILLE
•	COC52			PUT	W(SBPSAP)*W(STKPLBK*B3)	00050				D
•	COC53			BSK	B3*190	00052				MOVE DATA INTO PROPER BUF AREA
•	COC54			JP	\$+1	00053				
•	COC55			STR	B3*O(SAVER)	00054				STO SBPSAP WD FOR BUF JUST FIL
						00055				LED
						00056				STEP INPUT INDEX
						00057				
						00060				

..... SPUPT OUTPUT NO. 210
 LOGGING S.J.WHITE*06/29/65

CARDS	LI	ID	LABEL	TA	STATEMENT	LOC	F	JK	Y	NOTES
•	C0C56			CL	U(PRNB)	00061	16020	01573		CLEAR BUSY SWITCH
•	C0C57			ENT	A*(L(PRNB)*A*ZERO	00062	11410	01573		
•	C0C60			JP	\$+3	00063	61000	00066		
•	C0C61			ENT	A*(PGCNT)*ANOT	00064	11520	01563		
•	C0C62			JP	SEEIFOOT	00065	61000	00067		
•	C0C63			JP	NORMLEAVE	00066	61000	00164		
•	C0C64	SEEIFGUT		ENT	A*(L(STKPLBK+R4)*ANOT	00067	11514	00456		ISTHIS A TOP REQUEST
•	C0C65			JP	NOTTOP	00070	61000	00117		NO
•	C0C66			ENT	A*(PGCNT)	00071	11010	01563		YES
•	C0C67			SUB	A*3*APOS	00072	21600	00003		IS THERE 63 OR LESS LINES TO B
•	C0C70			JP	ISNEGATIVE	00073	61000	00107		E SKI+
•	C0C71			RPL	Y+1*U(PGCNT)	00074	36020	01563		NO*MORE
•	C0C72			ENT	A*660	00075	11000	00102		SET,NO OUTPUT UNTILL TOP
•	C0C73			SUB	A*(PGCNT)	00076	21010	01563		MAX LINES
•	C0C74			CL	L(CURRENTSAP)	00077	16010	01567		HOW MANY LINES TO TOP
•	C0C75	UPSET		PUT	W(SAPBFCNT)*W(PRNDT)	00100	10030	00426		SET FAKE OUTPUT
•	C0C76			RJP	SETSBPSAP	00101	14030	01572		
•	C0C77			CL	L(STKPLBK+B4)	00102	65000	00312		SET SBP
•	C0C80			RJP	PRINTINFO	00103	16014	00456		CL TOP MARK
•	C0C81			RPL	Y+1*(PRNB)	00104	65000	00322		INITIATE TOP
•	C0C82			JP	NORMLEAVE	00105	36010	01573		SET U NO OUTPUT UNTILL TOP
•	C0C83	ISNEGATIVE		ENT	A*(PGCNT)	00106	61000	00164		
•	C0C84			ADD	A*630	00107	11010	01563		
•	C0C85			STR	A*(L(CURRENTSAP)	00110	20000	00077		
•	C0C86			ENT	A*660	00111	15010	01567		
•	C0C87			RPL	A-Y*(L(CURRENTSAP)	00112	11000	00102		
•	C0C88			RPL	Y+1*U(PGCNT)	00113	25010	01567		
•	C0C89			ENT	A*630	00114	36020	01563		
•	C0C90			JP	UPSET	00115	11000	00077		
•	C0C91			JP	ENT	00116	61000	00100		NO
•	C0C92	NCTTCP		ENT	A*(L(STKPLBK+B4)*AZERO	00117	11464	00456		
•	C0C93			JP	FOUND	00120	61000	00126		
•	C0C94			BSK	04*190	00121	71400	00023		
•	C0C95			JR	\$+1	00122	61000	00123		
•	C0C96			ASK	85*190	00123	71500	00023		
•	C0C97			JP	NCTTUP	00124	61000	00117		
•	C0C98			JP	BEFO	00125	61000	00136		
•	C0C99	FCUNC		PUT	W(STKPLBK+B4)*W(RRNOT)	00126	10034	00432		
•	C0C100			RJP	SETSBPSAP	00127	14030	01572		
•	C0C101			RJP	PRINTINFO	00130	65000	00312		SET UP SPACE BEFORE PRINT
•	C0C102			JP	CHAVACTV	00131	65000	00322		PRINT INFORMATION
•	C0C103			CL	U(STKPLBK+B4)	00132	61000	00140		CHAN ACTIVE COULD NOT PRINT
•	C0C104			RUT	W(STKPLBK+B4)*W(CURRENTSAR)	00133	16024	00456		CLEAR SBP MARK BUFF JUST EMPTI
•	C0C105			BSK	84*190	00134	10034	00456		EO
•	C0C106			JP	\$+1	00135	14030	01567		
•	C0C107	CFANACTV		STR	B4*(L(SAVER)	00136	71400	00023		INDEX OUTPUT
•	C0C108			ENT	A*(L(PRNB)*ANOT	00137	61000	00140		
•	C0C109			JP	NORMLEAVE	00140	11520	01573		SAVE OUTPUT INDEX
•	C0C110			JP		00141	61000	00164		YES NORMAL RETURN

CARCS	LI	ID	LABEL	TA	STATEMENT	LOC	F	JK8	Y	NOTES
•	C0135				CL U(PRNB)	00143	16020	01573		
•	C0136				ENT A*(BUSYTRN)*AZERO	00144	11430	01565		
•	C0137				ENT A-O	00145	11040	77777		
•	C0140				CL W(BUSYTRN)	00146	16030	01565		
•	C0141				RJP WKRSTO	00147	65000	00302		
•	C0142				RILJP L(LOGWCRK)	00150	60110	00017		
•	C0143	EMERCUT			STR 80*CPW(EMERSW)	00151	16070	01562		
•	C0144				ENT A*UX(SBPSAP)	00152	11060	01571		
•	C0145				RJP SETSBPSAP	00153	65000	00312		SET SBP
•	C0146				ENT A*(EMERBUF)	00154	11010	00427		MOVE EMERGENCY DATA INTO BUF A REA
•	C0147				RJP MCVE DATA	00155	65000	00356		
•	C0150				PUT W(EMERBUF)*W(PRNOT)	00156	10030	00427		SET UP TO UTPUT EMERGENCY DAT A
•	C0151				RJP PPNT INFO	00157	14030	01572		
•	C0152				RPL Y+1*L(PRNB)	00160	65000	00322		OUTPUT EMERGENCY DATA
•	C0153				PUT W(SBPSAP)*W(CURRENTSAP)	00161	36010	01573		NO OUTPUT CHAN ACTV
•	C0154	NCRM LEAVE			RPL Y+1*L(LOGWORK)	00162	10030	01571		
•	C0155				RJP WKRSTU	00163	14030	01567		
•	C0156				RILJP L(LOGWORK)	00164	36010	00017		
•	C0157	BLSY			RPL Y+1*W(BUSYTRN)*SKIP	00166	60110	00017		
•	C0160	BUSYX			CL W(BUSYTRN)	00167	36130	01565		
•	C0161				RPL Y+1*U(PRNB)	00170	16030	01565		
•	C0162				CL W(CHANINACTV)	00171	36020	01573		SET BUF FULL RETURN BUSY SW
•	C0163				JP SEETFUOT	00172	16030	01566		
•	C0164	LCGINTR			ENTRY	00173	61000	00067		NO TRY OUTPUT NORMAL DATA
•	C0165				RJP SAVEALL	00174	61000	00000		
•	C0166				CL W(INTROCC)	00175	65000	00260		SAVE CONTENTS
•	C0167				STR C3*W(SAVECHAN)	00176	16030	01575		CLEAR PRINTER BUSY SWITCH
•	C0170				ENT A*U(SAVECHAN)	00177	17170	01576		STORE CHANNEL
•	C0171				RSH A*110	00200	11020	01576		
•	C0172				SUB A*10*ANOT	00201	02000	00013		
•	C0173				JP SOK	00202	21500	00010		
•	C0174				PUT 1*W(CHANINACTV)	00203	61000	00217		
•	C0175				RPL Y-1*L(SAVEB)*ANEG	00204	10000	00001		
•	C0176				JP \$+3	00205	14030	01566		
•	C0177				PUT 190*L(SAVEB)	00206	37710	01574		
•	C0200				ENT B4*L(SAVEB)	00207	61000	00212		
•	C0201				PUT 1*U(STKPLBK*84)	00210	10000	00023		
•	C0202				TERM C3*OUTPUT	00211	14010	01574		
•	C0203				JP GHOUT	00212	12410	01574		
•	C0204	SK			CL W(CHANINACTV)	00213	10000	00001		
•	C0205				ENT A*(PRNB)*AZERO	00214	14024	00456		
•	C0206				JP	00215	67140	00000		
•	C0207				JP	00216	61000	00232		
•	C0208				JP	00217	16030	01566		
•	C0209				JP	00220	11410	01573		WAS CHAN ACTIV LAST OUTPUT ATTE
•	C0210				JP	00221	61000	00254		MPI
•	C0211				JP	00222	11550	01567		YES
•	C0212				JP	00223	61000	00234		NO

CARDS	LL	IO	L/RCL	TA	STACMENT	LUC	F	JKB	Y	NOTES
•	C0211			RJP	SETS8PSAP	00224	65000	CC312		SET OP EMER SAP
•	C0212			POT	W(SAPBFCNf)•w(PRNOT)	00225	10030	CC426		SET UP DUMMY OUTPUT
•	C0213			RJP	PRNTINFO	00226	14030	01572		EXECUTE SAP
•	C0214			NO-OP		00227	65000	00322		NO BUSY RETURN
•	C0215			CL	W(CURRENTSAP)	00230	12000	00000		
•	C0216		G+OUT	RJP	RCSTOALL	00231	16030	01567		RESTORE OLD CONTENTS
•	C0217			RILJP	L(LOGINTR)	00233	60110	00174		RIL EXIT
•	C0220		STAOOUT	CNT	B4•L(SAVEB)	00234	12410	01574		
•	C0221			ENT	A•0X(STKPLRK+B4)•A•NOT	00235	11564	00456		
•	C0222			JP	WIFFEL	00236	61000	00252		
•	C0223		NCPNTSAP	RJP	SETS8PSAP	00237	65000	00312		SET PRINT OUTPUT FROM BUF
•	C0224			POT	W(STKPLBF+B4)•w(PRNOT)	00240	10034	00432		
•	C0225			RJP	PRNTINFO	00241	14030	01572		
•	C0226			NO-OP		00242	65000	00322		NO BUSY RETURN
•	C0227			CL	U(PGGNT)	00243	12000	00000		
•	C0230			CL	U(STKPLRK+B4)	00244	16020	01563		
•	C0231			POT	W(STKPLRK+B4)•w(CURRENTSAP)	00245	16024	00456		CL S8P
•	C0232			BSK	B4•190	00246	10034	00456		
•	C0233			JP	\$+1	00247	14030	01567		INCREMENT OUTPUT INDEX
•	C0234		WIFFEL	STR	B4•L(SAVEB)	00250	71400	00023		
•	C0235			JP	GHOUT	00251	61000	00252		
•	C0236		PRNTNO	RJP	PRNTINFO	00252	16410	01574		
•	C0237			NO-OP		00253	61000	00232		
•	C0240			CL	L(PRNBY)	00254	65000	00322		
•	C0241			JP	GHOUT	00255	12000	00000		
•	C0242		SAVEALL	ENTRY		00256	16010	01573		EXIT
•	C0243			STR	A•w(ISAVC)	00257	61000	00232		
•	C0244			STR	Q•w(ISAVE+1)	00261	15030	01577		
•	C0245			STR	B4•0(ISAVE+2)	00262	14030	01600		
•	C0246		RESTCALL	EXIT		00263	16420	01601		
•	C0247			CNTY		00264	61010	00260		
•	C0250			CNT	A•w(ISAVE)	00265	61000	00000		
•	C0251			ENT	Q•w(ISAVE+1)	00266	11030	01577		
•	C0252			ENT	B4•0(ISAVC+2)	00267	10030	01600		
•	C0253			EXIT		00270	12420	01601		
•	C0254		WKSAP	ENTRY		00271	61010	00265		
•	C0255			STR	B6•L(ISAVC+2)	00272	61000	00000		
•	C0256			STR	A•w(ISAVE+3)	00273	16610	01601		
•	C0257			STR	Q•w(ISAVE+6)	00274	15030	01602		
•	C0260			STR	B3•0(ISAVC+5)	00275	14030	01603		
•	C0261			STR	B4•L(ISAVC+5)	00276	16320	01604		
•	C0262			STR	B5•0(ISAVE+6)	00277	16410	01604		
•	C0263			EXIT		00300	16520	01605		
•	C0264		WKRSTC	ENTRY		00301	61010	00272		
•	C0265			CNT	B6•L(ISAVC+2)	00302	61000	00000		
•	C0266			CNT	A•w(ISAVE+3)	00303	12610	01601		
•	C0267			ENT	Q•w(ISAVE+4)	00304	11030	01602		
•	C0270			ENT	B3•0(ISAVC+5)	00305	10030	01603		
•	C0271			CNT	B4•L(ISAVC+5)	00306	12320	01604		
•	C0272			ENT	B5•0(ISAVC+6)	00307	12410	01604		
•						00310	12520	01605		

CARDS	LI	IO	LABEL	TA	STATEMENT	LOC	F	JK8	Y	NOTES
.	C0273				EXIT	00311	61010	003C2		
.	C0274		SETSBSAP		ENTRY	00312	61000	00C00		
.	C0275				ENT A*A*AP0S	00313	11670	00C00		WAS A REG NEG
.	C0276				CP A*	00314	15040	00C00		
.	C0277				STR A*LI(SAVFOWL)	00315	15010	01564		
.	C0300				LSH A*3	00316	06000	00C03		SET U(PRINTER)
.	C0301				ADD A*12000	00317	20000	12000		
.	C0302				STR A*U(PRINTER)	00320	15020	00424		
.	C0303				EXIT	00321	61010	00312		EXIT
.	C0304		PENTINFC		ENTRY	00322	61000	00C00		
.	C0305				BSK B0*W(INTROCC)	00323	71030	01575		IS CHANNEL BUSY
.	C0306				JP ACTVRTRN	00324	61000	00344		YES BUSY RETURN
.	C0307				JP ACTVRTRN*3*ACTIVE00T	00325	63140	00344		
.	C0310				EX-FCT C3*W(PRINTER)	00326	13170	00424		
.	C0311				NO-OP	00327	12000	00C00		
.	C0312				CUIT C3*W(PRNOT)	00330	74170	01572		
.	C0313				ENT A*LI(SAVFOWL)	00331	11010	01564		
.	C0314				ADD A*LI(PGENT)	00332	20010	01563		
.	C0315				SUB A*60*ANOT	00333	21500	00102		
.	C0316				JP TOORIG	00334	61000	00341		
.	C0317				ENT Q*A*ANEG	00335	10770	00C00		
.	C0320				JP TOORIG	00336	61000	00341		
.	C0321				ENT A*LI(SAVFOWL)	00337	11010	01564		
.	C0322				ADD A*LI(PGENT)	00340	20010	01563		
.	C0323		TCCBIG		STR A*LI(PGENT)	00341	15010	01563		
.	C0324				STR B0*CPW(INTROCC)	00342	16070	01575		SET CHANNEL BUSY SW
.	C0325				RPL Y+1*L(PRNTINFO)	00343	36010	00322		NORMAL RETURN
.	C0326		ACTVRTRN		ENT Q*W(PRNOT)	00344	10030	01572		
.	C0327				SUB Q*2	00345	27000	00C02		
.	C0330				RPT 380*ADV	00346	70100	00C06		
.	C0331				ENT A*W(RECFILE+120)*AZERO	00347	11430	63226		
.	C0332				JP FULLUP	00350	61000	00355		
.	C0333				ENT A*87	00351	11007	00C00		
.	C0334				ADD A*380	00352	20000	00C06		
.	C0335				ENT B7*A	00353	12770	00C00		
.	C0336				STR C*W(RECFILE+120+87)	00354	14037	63226		
.	C0337		FLLUP		EXIT	00355	61010	00322		
.	C0340		MCVECAT		ENTRY	00356	61000	00C00		
.	C0341				PSK B0*W(EMERSW)	00357	71030	01562		
.	C0342				JP ISEMER	00360	61000	00366		
.	C0343				ENT Q*STKPLRF*83	00361	10003	00432		
.	C0344				STR Q*LI(PUT1)	00362	14010	00404		
.	C0345				STR Q*LI(PUT2)	00363	14010	00406		
.	C0346				STR Q*LI(WHERE+1)	00364	14010	00411		
.	C0347				JP ISEMER+4	00365	61000	00372		
.	C0350		ISEMER		ENT Q*F*W*BUF	00366	10000	00427		
.	C0351				STR Q*LI(PUT1)	00367	14010	00404		
.	C0352				STR Q*LI(PUT2)	00370	14010	00406		
.	C0353				STR Q*LI(WHERE+1)	00371	14010	00411		
.	C0354				CL B*	00372	12600	00C00		
.	C0355				STR A*LI(LAOCONT+1)	00373	15010	00417		
.	C0356				ADD A*U(NDWR0SFWA)	00374	20020	01570		ADD NO. WR0S TO FWA TO BE FILL
										EO

CARDS	LI	ID	LABEL	TA	STATEMENT	LOC	F	JKB	Y	NOTES
.	C0357			STR	A*(WHERE+3)	00375	15010	00413		
.	C0360			ENT	A*(NOWROSFWA)	00376	11020	01570		
.	C0361			SUB	A*1	00377	21000	00001		SET OP BSK NO. WROS TO BE PICK
.	C0362			STR	A*(BSKWRUS)	00400	15010	00420		ED UP
.	C0363			SUB	A*250*ANOT	00401	21500	00031		
.	C0364			JP	\$+2	00402	61000	00404		
.	C0365			JP	WHERE	00403	61000	00410		
.	C0366		PLT1	ENT	Q*(L(0))	00404	10010	00000		
.	C0367			ADD	Q*250	00405	26000	00031		
.	C0370		PLT2	STR	Q*(U(0))	00406	14020	00000		
.	C0371			JP	GETFWA	00407	61000	00414		
.	C0372		WFERE	PUT	L*(\$+3)*U(0)	00410	10010	00413		
.	C0373			PUT	-0*(U(0))	00411	14020	00000		
.	C0374		CETFWA	PUT	L*(NOWROSFWA)*L*(\$+1)	00412	10040	77777		
.	C0375		LCAOCCNT	POT	W*(O+86)*W*(O+86)	00413	14030	00000		
						00414	10010	01570		SET FWA WHERE TO FIND DATA
						00415	14010	00416		LOAD DATA IN PROPER BUFFER ARE
						00416	10036	00000		A
.	C0376		BSKWRUS	BSK	B6*0	00417	14036	00000		
.	C0377			JP	LOADCNT	00420	71600	00000		
.	C0400			CL	W*(EMERSW)	00421	61000	00416		
.	C0401			FXIT		00422	16030	01562		
.	C0402		PRINTER	1201C	1	00423	61010	00356		
.	C0403		SAPPRNT	-0	-0	00424	12010	00001		
.	C0404		SAPBFCNT	U-TAG	SAPPRNT*SAPPRNT	00425	77777	77777		
.	C0405		EMERBUF	U-TAG	EMRCAREA*250*EMRGAREA	00426	00425	00425		
.	C0406		INTRCC	U-TAG		00427	01640	01607		
.	C0407		FCPLCC	RJP	LOCINTR	00430	65000	00174		
.	C0410		SKPLBF	FO	O*PRLNG	00431	25272	12414		
.	C0411			U-TAG	STACKU1+250*STACKU1	00432	00535	00504		
.	C0412			U-TAG	STACKU2+250*STACKU2	00433	00571	00540		
.	C0413			U-TAG	STACKU3+250*STACKU3	00434	00625	00574		
.	C0414			U-TAG	STACKU4+250*STACKU4	00435	00661	00630		
.	C0415			U-TAG	STACKU5+250*STACKU5	00436	00715	00664		
.	C0416			U-TAG	STACKU6+250*STACKU6	00437	00751	00720		
.	C0417			U-TAG	STACKU7+250*STACKU7	00440	01005	00754		
.	C0420			U-TAG	STACKU8+250*STACKU8	00441	01041	01010		
.	C0421			U-TAG	STACKU9+250*STACKU9	00442	01075	01044		
.	C0422			U-TAG	STACK10+250*STACK10	00443	01131	01100		
.	C0423			U-TAG	STACK11+250*STACK11	00444	01165	01134		
.	C0424			U-TAG	STACK12+250*STACK12	00445	01221	01170		
.	C0425			U-TAG	STACK13+250*STACK13	00446	01255	01224		
.	C0426			U-TAG	STACK14+250*STACK14	00447	01311	01260		
.	C0427			U-TAG	STACK15+250*STACK15	00450	01345	01314		
.	C0430			U-TAG	STACK16+250*STACK16	00451	01401	01350		
.	C0431			U-TAG	STACK17+250*STACK17	00452	01435	01404		
.	C0432			U-TAG	STACK18+250*STACK18	00453	01471	01440		
.	C0433		SKPLBK	U-TAG	STACK19+250*STACK19	00454	01525	01474		
.	C0434			U-TAG	STACK20+250*STACK20	00455	01561	01530		
.	C0435			RESERVE	ZOC	00456	00000	00000		
.				RESERVE	2	00502	00000	00000		

CARDS	LI	ID	LABEL	TA	STATEMENT	LOC	F	JKB	Y	NOTES
.	C0436		STACKC1	RESERVE	260	00504	00000	00000	00000	
.	C0437			RESERVE	2	00536	00000	00000	00000	
.	C0440		STACKC2	RESERVE	260	00540	00000	00000	00000	
.	C0441			RESERVE	2	00572	00000	00000	00000	
.	C0442		STACKC3	RESERVE	260	00574	00000	00000	00000	
.	C0443			RESERVE	2	00626	00000	00000	00000	
.	C0444		STACKC4	RESERVE	260	00630	00000	00000	00000	
.	C0445			RESERVE	2	00662	00000	00000	00000	
.	C0446		STACKC5	RESERVE	260	00664	00000	00000	00000	
.	C0447			RESERVE	2	00716	00000	00000	00000	
.	C0450		STACKC6	RESERVE	260	00720	00000	00000	00000	
.	C0451			RESERVE	2	00752	00000	00000	00000	
.	C0452		STACKC7	RESERVE	260	00754	00000	00000	00000	
.	C0453			RESERVE	2	01006	00000	00000	00000	
.	C0454		STACKC8	RESERVE	260	01010	00000	00000	00000	
.	C0455			RESERVE	2	01042	00000	00000	00000	
.	C0456		STACKC9	RESERVE	260	01044	00000	00000	00000	
.	C0457			RESERVE	2	01076	00000	00000	00000	
.	C0460		STACK1C	RESERVE	260	01100	00000	00000	00000	
.	C0461			RESERVE	2	01132	00000	00000	00000	
.	C0462		STACK11	RESERVE	260	01134	00000	00000	00000	
.	C0463			RESERVE	2	01166	00000	00000	00000	
.	C0464		STACK12	RESERVE	260	01170	00000	00000	00000	
.	C0465			RESERVE	2	01222	00000	00000	00000	
.	C0466		STACK13	RESERVE	260	01224	00000	00000	00000	
.	C0467			RESERVE	2	01256	00000	00000	00000	
.	C0470		STACK14	RESERVE	260	01260	00000	00000	00000	
.	C0471			RESERVE	2	01312	00000	00000	00000	
.	C0472		STACK15	RESERVE	260	01314	00000	00000	00000	
.	C0473			RESERVE	2	01346	00000	00000	00000	
.	C0474		STACK16	RESERVE	260	01350	00000	00000	00000	
.	C0475			RESERVE	2	01402	00000	00000	00000	
.	C0476		STACK17	RESERVE	260	01404	00000	00000	00000	
.	C0477			RESERVE	2	01436	00000	00000	00000	
.	C0500		STACK18	RESERVE	260	01440	00000	00000	00000	
.	C0501			RESERVE	2	01472	00000	00000	00000	
.	C0502		STACK19	RESERVE	260	01474	00000	00000	00000	
.	C0503			RESERVE	2	01526	00000	00000	00000	
.	C0504		STACK20	RESERVE	260	01530	00000	00000	00000	
.	C0505		EMERSW	C	0	01562	00000	00000	00000	
.	C0506		PCNT	C	0	01563	00000	00000	00000	
.	C0507		SAVFGWL	C	0	01564	00000	00000	00000	
.	C0510		BLSVTRN	C	0	01565	00000	00000	00000	
.	C0511		CPANINACTV	C	0	01566	00000	00000	00000	
.	C0512		CLRRNTSAP	C	0	01567	00000	00000	00000	
.	C0513		NWRDSEFWA	C	0	01570	00000	00000	00000	
.	C0514		SBPSAR	C	0	01571	00000	00000	00000	
.	C0515		PFNOT	C	0	01572	00000	00000	00000	
.	C0516		PRNBY	C	0	01573	00000	00000	00000	
.	C0517		SAVEB	C	0	01574	00000	00000	00000	
.	C0520		INTRCCC	C	0	01575	00000	00000	00000	
.	C0521		SAVECHAN	C	0	01576	00000	00000	00000	
.	C0522		ISAVE	RESERVE	6	01577	00000	00000	00000	

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..... SPURT OUTPUT NO. 210 .....
S.J.WHITE*06/29/65

..... LOGGING .....
L1 IO LABEL TA STATEMENT LOC F JKB Y NOTES
* C0523 RESERVE 2 01605 00000 00000
* C0524 EMRGAREA RESERVE 260 01607 00000 00000
* C0525 NO-OP 01641 12000 00000 DUMMY

END OF LISTING

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S.-J.WHITE-06/29/65

LOGGING

LABEL	LOC	LABEL	LOC	LABEL	LOC
ACQAZIM	63071	ACQLEV	63075	ACQUI	63427
ACTUALTIME	63142	ACTVRTRN	00344	ADSCN	63416
AESCN	63417	ALNGOFSET	63517	ARCOFAZIM	63524
ARCOEDEC	63526	ARCOFELEV	63522	ARCOFRA	63530
ASTRODEC	63106	ASTRORA	63105	AUPEEREQUAT	63341
AZELQTIME	63532	AZELBXSCAN	63500	AZIM	63053
AZIMOEFSSET	63512	AZIMOUT	64000	AZIMOVER	63325
AZIMADD	63442	AZIMIN	75000	AZMTHSCAN	63501
BCOYSIZE	63462	REFO	00136	BLASTOFE	63146
BSKWRDS	00420	BUSY	00167	BUSYTRN	01565
BUSYX	00170	CUCUN	63414	CONVERTIME	63135
CCRCT	63420	CUSORIENT	63065	COSAZEL	63070
CAZIM	63060	CELBOUY	63113	CELCOMPGM	63424
CELEV	63061	CELTIME	63133	CHANACTV	00140
CHANINACTV	01566	CHCOR	63422	CHPAR	63431
CRANGE	63057	CRSSOFSET	63516	CURRENTSAP	01567
DCPPDUT	66000	DOPPAD	63444	DATANALYZE	63425
DAY	63150	DEC	63003	DECOESET	63515
CECDOT	63010	DECLINSCAN	63505	DELTATEE	63316
DSECONDS	63141	DUMSECITG	63154	DYDMP	63421
ELEV	63054	ELEVDFSET	63513	ELEVOUT	65000
ELEVADD	63443	ELEVIN	76000	ELVTNSCAN	63502
EMEROUT	00151	EMERRUF	00427	EMERSH	01562
EMRGAREA	01607	EQUATOR	63323	ESTSHIETED	63143
EXPNAME	63350	FOUND	00126	EOPRLOG	00431
FIRSTELEV	63104	FIRSTTHRU	63153	FLATTENING	63337
FRAMESIZE	63101	FREQUENCY	63317	EULLUP	00355
GEOCENLAT	63322	GEUDETLAT	63321	GETEWA	00414
GHOUT	00232	GMTMODU24	63145	GMTSHIETED	63144
HCLDNOHCLC	63511	HOURMINUTE	63137	HOURREG	63151
HEIGHT	63326	ID1ORADIO	66777	ID11RADIO	67776
IC12RADIO	67777	ID13RADIO	70775	ID14RADIO	70776
ID15RADIO	71776	ID16RADIO	71777	ID17RADIO	72776
ID18RADIO	72777	ID19RADIO	73776	ID1CELCOR	63000
IC1ENTPNT	63410	ID1RADCOR	63050	ID1RADIO	63440
IC1RECRD	63210	ID1SYSENT	77576	ID1SYSNAM	77676
ID1SYSPAR	63310	ID1TIME	63130	ID2ORADIO	73777
ID21RADIO	74776	ID22RADIO	74777	ID23RADIO	75776
ID24RADIO	75777	ID25RADIO	76775	ID26RADIO	76776
ID2CELCOR	63001	ID2ENTPNT	63411	ID2RADCOR	63051
ID2RADIO	63441	ID2RECRD	63211	ID2SYSENT	77577
ID2SYSNAM	77677	ID2SYSPAR	63311	ID2TIME	63131
ID3RADIO	63776	ID4RADIO	63777	ID5RADIO	64776
ID6RADIO	64777	ID7RADIO	65776	ID8RADIO	65777
ID9RADIO	66776	INAZIMADD	63446	INELEVAUD	63447
INTER	63413	INTERAZIM	72000	INTERCOM	63426
INTERDOPP	74000	INTERELEV	73000	INTERLCKSW	63460
INTERRANGE	76777	INTROCC	01575	INTRGO	00430
ISAVE	01577	ISEMER	00366	ISNEGATIVE	00107
KMPERSM	63342	KYBRDLLEVEL	63110	LOADCONT	00416
LCGGING	00000	LUGINIT	00002	LOGINTR	00174

..... LOGGING SPURT OUTPUT NO. 211 S-J.WHITE*06/29/65

LABEL	LOC	LABEL	LOC	LABEL	LOC
LCGWORK	00017	LONGITUDE	63320	LSPERAU	63336
MCVEDATA	00356	MAINSWITCH	63334	MCPFILLER	71000
MCPGM	63412	MILLSTNAD	63451	MINREG	63152
MSREQ	63332	NOPRNTSAP	00237	NORMLEAVE	00164
NCRMP	63050	NOTTOP	00117	NORMOSFWA	01570
NPERAU	63340	POLE	63324	PER100AZIM	63523
PER100DEC	63525	PER100ELEV	63521	PER100ORA	63527
PGCNT	01563	PLOTP	63436	PLANP	63434
PREVIOUSSTM	63461	PRINTER	00424	PRLOG	63423
PRNCT	01572	PRNBY	01573	PRN1NFU	00322
PRNTNOM	00254	PUT1	00404	PUT2	00406
RCTATEAEXP	63507	ROTATERADN	63506	ROTATERDBX	63510
RA	63002	RAOFFSET	63514	RADOT	63007
RADARMODE	63312	RADCBXSCAN	63503	RADECOTIME	63531
RADICDEC	63541	RADIOMETER	63102	RAD1ORA	63540
RADIUS	63006	RADIUSDOT	63011	RANGE	63052
RANGEOUT	70777	RANGEADD	63445	RANGEDOT	63062
RASCTNSCAN	63504	RDTR	63430	RDXRX	63433
RECCROSSIZE	63112	RECAZIM	67000	RECELEV	70000
REFILE	63212	RECRD	63415	RECRDSWICH	63155
RELEASESW	63156	RESTOALL	00265	SOK	00217
SAPBFCNT	00426	SAPRNT	00425	SAVEALL	00260
SAVEB	01574	SAVECHAN	01576	SAVFWL	01564
SAZIM	63055	SBPSAP	01571	SCELTIME	63134
SOEC	63005	SECONDS	63140	SEE1FOU1	00067
SELEV	63056	SETS8PSAP	00312	SIDERTIME	63012
SINCRIENT	63064	SINAZEL	63066	SKIP	63331
SRA	63004	SRADTIME	63136	STACK01	00504
STACK02	00540	STACK03	00574	STACK04	00630
STACK05	00664	STACK06	00720	STACK07	00754
STACK08	01010	STACK09	01044	STACK10	01100
STACK11	01134	STACK12	01170	STACK13	01224
STACK14	01260	STACK15	01314	STACK16	01350
STACK17	01404	STACK18	01440	STACK19	01474
STACK20	01530	STADOUT	00234	STKPLBF	00432
STKPLRK	00456	SYNCTIMING	63542	SYSCOMREG1	63452
SYSCOMREG2	63453	SYSCOMREG3	63454	SYSCOMREG4	63455
SYSCOMREG5	63456	SYSCOMREG6	63457	SYSENTRIES	77600
SYSNAMES	77700	SYSTAT1	63313	SYSTAT2	63314
SYSTAT0	63315	TOOBLS	00341	TIMECORR	63107
TIMEMODE	63103	TIMEP	63435	TIMETOHOLD	63520
TRUERANGE	63663	TRUETIME	63132	TTYSTATUS	63111
TWSECDCP	63017	UPSET	00100	VELOFLIGHT	63335
V17DFC1	63014	V17DEC2	63016	V17RA1	63013
V17RA2	63015	WFORD	63432	WFADD	63450
WFFREQ	63333	WHERE	00410	WIFFEL	00252
WKRSTO	00302	WKSAY	00272	YEARMONTH	63147
YRTRAN	63327	ZRTRAV	63330		

END OF LISTING

LOGGING

LABEL	LCC	LABEL	LCC	LABEL	LCC	LABEL	LCC
LOGGING	C0CUU	LOGINIT	00002	LOGWORK	00017		
NCRMP	C0C50	SEEIFOUT	00067	UPSET	00100		
ISNEGATIVE	C0107	NOTTOP	00117	FOUND	00126		
REFC	C0136	CHANACTV	00140	EMEROUT	00151		
NCRMLEAVE	C0164	BUSY	00167	BUSYX	00170		
LOGINTR	C0174	SOK	00217	GHOIT	00232		
STACOUT	C0234	NOPRNTSAP	00237	WIFFEL	00252		
PRNTNOM	C0254	SAVEALL	00260	RESTOALL	00265		
WKSAP	C0272	WKRSTO	00302	SETSBPSAP	00312		
PRNTINFO	C0322	TOOBIG	00341	ACTVTRN	00344		
FULLUP	C0355	MOVEDATA	00356	ISEMER	00366		
PUT1	C0404	PUT2	00406	WHERE	00411		
GETFWA	C0414	LOADCONT	00416	BSKWRDS	00420		
PRINTER	C0424	SAPRNT	00425	SAPBFCNT	00426		
EMERBUF	C0427	INTRGO	00430	FDPRLOG	00431		
STKPLBF	C0432	STKPLBK	00456	STACK01	00504		
STACK02	C0540	STACK03	00574	STACK04	00630		
STACK05	C0664	STACK06	00720	STACK07	00754		
STACK08	C0100	STACK09	01044	STACK10	01100		
STACK11	C0134	STACK12	01170	STACK13	01224		
STACK14	C01260	STACK15	01314	STACK16	01350		
STACK17	C01404	STACK18	01440	STACK19	01474		
STACK20	C01530	EMERSW	01562	PGCNT	01563		
SAVFWL	C01564	BUSYRTRN	01565	CHANINACTV	01566		
CURRENTSAP	C1567	NOMRDSFWA	01570	SBPSAP	01571		
PNCT	C1572	PRNBY	01573	SAVEB	01574		
INTROCC	C1575	SAVECHAN	01576	ISAVE	01577		
EMRGAREA	C1607	ID1CELCLOR	63000	ID2CELCLOR	63001		
RA	C3002	OEC	63003	SRA	63004		
SOEC	C3005	RADIUS	63006	RADOT	63007		
DECCOT	C3010	RADIUSOOT	63011	SIDERTIME	63012		
VIZRAL	C3013	VIZDEC1	63014	VIZRA2	63015		
V7CEC2	C3016	TWOSECDOP	63017	ID1RADCOR	63050		
ID2RADCOR	C3051	RANGE	63052	AZIM	63053		
ELEV	C3054	SAZIM	63055	SELEV	63056		
CRANGE	C3057	CAZIM	63060	CELEV	63061		
RANGEOOT	C3062	TRUERANGE	63063	SINORIENT	63064		
CCSGRIENT	C3065	SINAZEL	63066	COSAZEL	63070		
ACGAZIM	C3071	ACQELEV	63075	FRAMESIZE	63101		
RADIOMETER	C3102	TIMEMODE	63103	FIRSTELEV	63104		
ASTRORA	C3105	ASTRODEC	63106	TIMECORR	63107		
KYROLEVEL	C3110	TTSTATUS	63111	RECORDSIZE	63112		
CELBODY	C3113	ID1TIME	63130	ID2TIME	63131		
TRUETIME	C3132	CELTIME	63133	SCELTIME	63134		
CCNVERTIME	C3135	SRADTIME	63136	HOURLMINUTE	63137		
SECCNDS	C3140	OSECCNDS	63141	ACTUALTIME	63142		
ESTSHIFTED	C3143	GMTSHIFTED	63144	GMTMODU24	63145		
BLASTOFF	C3146	YEARMONTH	63147	DAY	63150		
HOURREG	C3151	MINREG	63152	FIRSTTHRU	63153		
DUMSECTTG	C3154	RECRDSWCH	63155	RELEASESW	63156		
ID1RECRD	C3210	ID2RECRD	63211	RECFILE	63212		

LABEL	LOC	LABEL	LOC	LABEL	LOC
ICISYSVAR	63310	IO2SYSVAR	63311	RADARMODE	63312
SYSTAT1	63313	SYSTAT2	63314	SYSTATD	63315
DELTAEE	63316	FREQUENCY	63317	LONGITUDE	63320
GEODETLAT	63321	GEODENLAT	63322	EQUATUR	63323
PCLE	63324	AZIMOVER	63325	HEIGHT	63326
YRTRAN	63327	ZRTRAN	63330	SKIP	63331
MSREQ	63332	WFREQ	63333	MAINSWITCH	63334
VELCFLIGHT	63335	LSPERAU	63336	FLATTENING	63337
NMPERAU	63340	AUPEREQUAT	63341	KMPERNM	63342
EXPNAME	63350	IDIENTPNT	63410	ID2ENTPNT	63411
MCPGM	63412	INTER	63413	COCON	63414
RECRD	63415	AOSCN	63416	AESCN	63417
CDPCT	63420	DYDMP	63421	CHCOR	63422
PRLOG	63423	CELCOMPGM	63424	OATANALYZE	63425
INTERCUM	63426	ACQUIT	63427	RDTR	63430
CHPAR	63431	WFURO	63432	RDXX	63433
PLANP	63434	TIMEP	63435	PLOTP	63436
ICIRAOIC	63440	ID2RAID	63441	AZIMADD	63442
ELEVAGD	63443	ONPPADD	63444	RANGEADD	63445
INAZIMADD	63446	INELEVADD	63447	WFADD	63450
MILLSTNADD	63451	SYSCOMREG1	63452	SYSCOMREG2	63453
SYSCOMREG3	63454	SYSCOMREG4	63455	SYSCOMREG5	63456
SYSCOMREG6	63457	INTERLCKSW	63460	PREVIDUSTM	63461
BCDYSIZE	63462	AZELBXSCAN	63500	AZMTHSCAN	63501
ELVTNSCAN	63502	RADCBXSCAN	63503	RASCTNSCAN	63504
DECLINSCAN	63505	ROTATERADN	63506	ROTATEAEBX	63507
ROTATERDRX	63510	HOLDONHOLD	63511	AZIMUFFSET	63512
ELEVDOFFSET	63513	RADFFSET	63514	DECOFFSET	63515
CRSSOFFSET	63516	ALNGOFFSET	63517	TIMEIDHOLD	63520
PERIDDELEV	63521	ARCOFFLEV	63522	PERIODAZIM	63523
ARCOFAZIM	63524	PERIODDEC	63525	ARCOFDEC	63526
PERIODRA	63527	ARCOFRA	63530	RADECOTIME	63531
AZELUTIME	63532	RADIORA	63540	RADIODEC	63541
SYNCTIMING	63542	ID3RAID	63776	ID4RAID	63777
AZIMOUT	64000	ID5RAID	64776	ID6RAID	64777
ELEVOUT	65000	ID7RAID	65776	ID8RAID	65777
DCPPUT	66000	ID9RAID	66776	ID10RAID	66777
RECAZIM	67000	ID11RAID	67776	ID12RAID	67777
RECELEV	70000	ID13RAID	70775	ID14RAID	70776
RANGEOUT	70777	MCPFILLER	71000	ID15RAID	71776
ID16RAID	71777	INTERAZIM	72000	ID17RAID	72776
ID18RAID	72777	INTERELEV	73000	ID19RAID	73776
ID2CRADIC	73777	INTERDOPP	74000	ID21RAID	74776
ID22RAID	74777	AZIMIN	75000	ID23RAID	75776
ID24RAID	75777	ELEVIN	76000	ID25RAID	76775
ID26RAID	76776	INTERRANGE	76777	ID1SYSNT	77576
ID2SYSNT	77577	SYSENTRIES	77600	ID1SYSNAM	77676
ID2SYSNAM	77677	SYSNAMES	77700		

..... SPURT CLPUT NC. 21C
 RECORDING JDD+AAM*04/28/65

CARDS	LI	ID	LAPEL	TA	STATEMENT	LOC	F	JKS	Y	NTES
•	CC000	RECORDING	PROGRAM	JDD+AAM*04/28/65						
•	CC001	TPCHN	MEANS	C15						MAGNETIC TAPE OUTPUT BUFFER CO
•	CC002	BCA	EQUALS	135						NTRCL
•	CC003	TAPEEXTINT	EQUALS	35						MAGNETIC TAPE EXTERNAL INTERRUPT
•	CC004	RECORDING	U-TAG	RECORDC*PRECINT		00000	CCC72	CCC22		
•	CC005		FC	1*RECORD		00001	27121	C2711		
•	CC006	PRECINT	ENTRY			00002	61000	CCCCC		INITIALIZATION OF RECORDING
•	CC007		JP	FINAL*ANOT		00003	60500	CCC33		C FOR INIT AND 1 FOR FINAL
•	CC008		ENT	C*W(KYBRCLLEVEL)*QPOS		00004	10230	63110		
•	CC009		JP	TELLNHEAD		00005	61000	CCC16		
•	CC010		CL	W(DRMSGREPLY)		00006	16030	CC521		SET FOR FULL RECORDING
•	CC011		RJP	U(INTERCOM)		00007	65020	63426		ASK HOW MUCH RECORDING
•	CC012		U-TAG	DRMSG*DRANS		00010	CC476	CC515		
•	CC013		ENT	A*L(DRMSGREPLY)		00011	11010	CC521		
•	CC014		STR	A*L(RECORDSWITCH)		00012	15010	63155		
•	CC015		SUB	A*2*AZERO		00013	21400	CCCC2		RECORDING STOPPED
•	CC016		STR	BC*CP(L(MSGSWITCH))		00014	16050	CC463		INDICATE NEW HEADLINE NEEDED
•	CC017		ENT	A*L(X(SYSTAT)) *APCS		00015	11650	63313		IS SYSTEM CYCLING
•	CC018	TELLNHEAD	STR	PC*CP(L(MSGSWITCH))		00016	16050	CC463		
•	CC019		JP	L(MPRECINT)*APOS		00017	60610	CCCC2		PCS IS CYCLING*EXIT
•	CC020		CL	W(RELCASESW)		00020	16030	63156		
•	CC021		CL	U(MSGSWITCH)		00021	16020	CC463		CLEAR CLT INTERLOCK INDICATOR
•	CC022		CL	U(INTERLOCKSW)		00022	16020	63460		ENABLE INTERLOCK PRINTING
•	CC023		CL	W(SYSTATD)		00023	16030	63315		CLEAR CLT FINALIZATION INDICAT
•	CC024		RPT	500*ADV		00024	70100	CCCC62		CR
•	CC025		CL	W(RECFILE)		00025	16030	63212		CLEAR CLT RECFILE
•	CC026		CL	W(BCW)		00026	16030	CC135		CLEAR MAGNETIC TAPE OUTPUT BCM
•	CC027		CL	W(BUSYSSTATUS)		00027	16030	CC473		SET STATLS TO INTERRUPT OCCUR
•	CC028		CL	W(TAPENO)		00030	16030	CC452		ED LAST FRAME
•	CC029		CL	W(KEEPB3)		00031	16030	CC523		SET TAPE NUMBER TC C
•	CC030		EXIT			00032	61010	CCCC2		SET TO BEGINNING OF RECFILE
•	CC031		JP	\$*TPCHN*ACTIVEOUT		00033	63640	CCCC3		LATER ASK TITLE INFO FOR HEADI
•	CC032		STR	PC*CP(W(SYSTATD))		00034	16070	63315		NG BLCK
•	CC033		ENT	A*L(FCTWRITE)		00035	11010	CC530		WAIT FOR CHANNEL TO BE FREE
•	CC034		RSH	A*3		00036	02000	CCCC3		SET FINALIZATION INDICATOR
•	CC035		JP	TAPE3*AZERO		00037	60400	CCCC5		
•	CC036		RIL			00040	60000	CCCCC		
•	CC037	FINAL	PUT	W(TEWJP3)*W(TAPEEXTINT)		00041	10030	CC445		SET UP INTERRUPT ENTRANCE
•	CC038		EX-FCT	TPCHN*W(EEFCN3)		00042	14030	CC435		
•	CC039		JP	\$		00043	13670	CC446		WAIT
•	CC040		RILJP	TEWRT3		00044	61000	CCCC4		
•	CC041	TEWJP3	STR	TPCHN*W(NOTUSE)		00045	61000	CCCC4		
•	CC042	TEWRT3	PUT	TEWOUT3*L(TAPEEXTINT)		00046	17670	CC453		
•	CC043		EX-FCT	TPCHN*W(REWNC3)		00047	10000	CCCC5		
•	CC044		JP	\$		00050	14010	CC435		
•	CC045	TEWOUT3	STR	TPCHN*W(NOTUSE)		00051	13670	CC450		
•	CC046		EX-FCT	TPCHN*W(REWNC3)		00052	61000	CCCC5		WAIT
•	CC047		JP	\$		00053	17670	CC453		
•	CC048		STR	TPCHN*W(NOTUSE)		00054				
•	CC049					00055				

.....RECORDING.....SPURT CLIPUT NO. 210.....
JCO+AAW*04/28/65

CARDS	LI	LO	LABEL	TA STATEMENT	LOC	F	JKR	Y	NCES
.	CC056			JP L(MRECINT)	00054	61C1C	CCCC		
.	CC057	TAPE3		RIL	00055	6CCCC	CCCC		
.	CC06C			PUT W(TEWJP2)*W(TAPEEXTINT)	00056	1CC3C	CCC62		SET UP INTERRUPT ENTRANCE
.	CC061			EX-FCI TPCN*W(ECFCN2)	00057	14C3C	CCC35		
.	CC062			JR \$	00060	1367C	CC447		WAIT
.	CC063	TEWJP2		RILJR TEWRT2	00061	61CCC	CCC61		
.	CC064	TEWRT2		STR TPCN*W(NOTUSE)	00062	6C1CC	CCC63		
.	CC065			PUT TEWOUT2*L(TAREEXTINT)	00063	1767C	CC453		
.	CC066			EX-FCI TPCN*W(REWMD2)	00064	1CCCC	CCC7C		
.	CC067			JR \$	00065	14C1D	CCC35		
.	CC07C	TEWOUT2		STR TPCN*W(NOTUSE)	00066	1367C	CC451		WAIT
.	CC071			JR L(MRECINT)	00067	61CCC	CCC67		
.	CC072	RECORD		ENTRY	00070	1767C	CC453		
.	CC073			STR BC*CPW(RELEASESW)	00071	61C1C	CCCC		
.	CC074	GOCN		ENT A*U(MSGSWITCH)*ANDI	00072	61C1C	CCCC		SEARCH AND RECRD 1ST BLOCK
.	CC075			JR ASKHEAD	00073	16C7C	63156		NEG SAYS RECRDING BUSY IN SIM
.	CC076			RJP U(PRLOG)					. PCCE
.	CC077			7 INTERLOCKW	00074	1152C	CC463		WAS THERE AN INTERLOCK
.	CC10C			2 -26C	00075	61CCC	CC1C4		NC
.	CC101			JR \$+3	00076	65C2C	63423		YES. PRINT INTERLOCK MESSAGE
.	CC102			CL U(MSGSWITCH)	CC077	CCCC7	CC464		
.	CC103			STR PC*CPU(INTERLOCKW)	CC100	CCCCC	77745		
.	CC104	ASK*HEAD		ENT A*L(MSGSWITCH)	CC101	61CCC	CC1C4		DISABLE INTERLOCK PRINT
.	CC105			JR NCHEAD*AZERO	CC102	16C2C	CC463		DISABLE INTERLOCK ROUTINE
.	CC106			RJP SETUPHEAD	CC103	16C60	6346C		DC WE NEED A HEADING RECORD
.	CC107			RJP HEAD	CC104	11C1C	CC463		
.	CC11C			EXIT	CC105	6C4CC	CC111		NC
.	CC111	NO*HEAD		CL B3*	CC106	65CCC	CC352		YES, SET LR HEADING RECORD
.	CC112			STR B3*W(KEEPB3)	CC107	65CCC	CC426		WRITE HEADING RECCRC
.	CC113			ENT A*U(EXCESS)*AZERC	CC110	61C1C	CCC72		
.	CC114			RJP LOGNOWRITE	CC111	123CC	CCCC		
.	CC115			CL W(THEREGS)	CC112	1633C	CC523		WERE TCC MANY WCRCS TO BE RECO
.	CC116			ENT A*W(BUSYSTATUS)*AZERC	CC113	1142C	CC227		RDEC
.	CC117			JR ENDSOME	CC114	65CCC	CC23C		YES. PRINT RECFILE RELATIVE L
.	CC12C			STR BC*CPW(BUSYSTATUS)	CC115	16C3C	CC445		CCATICA
.	CC121	ENDSOME		JP L(RECORD)*TPCN*ACTIVEOUT	CC116	1143C	CC473		SET NUMBER OF WCRCS RECORDED TH
.	CC122	LOCF1		TERM TPCN*OUTPUT	CC117	61CCC	CC122		IS FRAME TC C
.	CC123			ENT A*W(RECFILE+B3)*ANDI	CC120	16C7C	CC473		HAS INTERRUPT ANSWERED LAST FR
.	CC124			JP NCWRITE	CC121	6365C	CCC72		AME
.	CC125			SILRJP WRITE	CC122	6764C	CCCC		NC
.	CC126			JR NCWRITE	CC123	11533	63212		YES. SET STATUS TO NO INTERRU
.	CC127			STR B3*W(KEEPB3)	CC124	61CCC	CC131		RT
.	CC13C			RILJP L(RECCRC)	CC125	641CC	CC161		LEAVE IF CHANNEL BUSY
.					CC126	61CCC	CC131		RCW=C
.					CC127	1633C	CC523		
.					CC13C	6C11C	CCC72		RETURN TC MAIN CONTROL

CARDS	LI	ID	LABEL	TA	STATEMENT	LCC	F	JKR	Y	NOTES
.	CC131		NCWRITE	BSK	B3*490	CC131	713C	CCC61		NC RECCRC
.	CC132			JP	LCOP1	CC132	61CC	CCC123		CONTINUE SEARCH OF FILE
.	CC133			CL	W(RELEASESW)	CC133	16C30	63156		MCP FREE TC RECYCLE IN SIM. MO DE
.	CC134			EXIT		CC134	61C1C	CCC72		ALL BCW=C SO NO RECORDING
.	CC135		RECINTRPT	ENTRY		CC135	61CC	CCCC		WHEN INTERRUPT OCCURS
.	CC136			CL	W(BUSYSTATUS)	CC136	16C30	CC473		SET TC INTERRUPT OCCURRED
.	CC137			RJP	SAVEREG	CC137	65CC	CC551		
.	CC140			ENT	B3*W(KEEPB3)	CC140	1233C	CC523		
.	CC141			CL	W(RECFILE+B3)	CC141	16C33	63212		
.	CC142			STR	TPCHN*WISTATUS)	CC142	1767C	CC522		
.	CC143			ENT	A*U(STATUS)	CC143	11C2C	CC522		EXAMINE STATUS WORD OF
.	CC144			RSH	A*110	CC144	C2CC	CCC13		BLCK JUST RECORDED
.	CC145			ENT	B4*A	CC145	1247C	CCCC		
.	CC146			RJP	L(SWTABLE+B4)	CC146	65C14	CC531		
.	CC147		DOWNRIT	BSK	B3*490	CC147	713C	CCC61		
.	CC150			JP	CONTINU	CC150	61CC	CC153		
.	CC151			CL	W(RELEASESW)	CC151	16C30	63156		MCP FREE TC RECYCLE IN SIM. MO DE
.	CC152			JP	CCNE	CC152	61CC	CC157		
.	CC153		CONTINU	ENT	A*W(RECFILE+B3)*ANDT	CC153	11533	63212		CONTINUE FILE SEARCH
.	CC154			JP	CONWRIT	CC154	61CC	CC147		BCW=C
.	CC155			RJP	WRITE	CC155	65CC	CC161		BCW AND C WRITE BLOCK
.	CC156			JP	CONWRIT	CC156	61CC	CC147		
.	CC157		OGNE	RJP	PUTBACK	CC157	65CC	CC557		
.	CC160			RILJP	L(RECINTRPT)	CC160	6011C	CC135		EXIT
.	CC161		WRITE	ENTRY		CC161	61CC	CCCC		WRITE A BLOCK WITH EXT INT
.	CC162			ENT	A*U(RECFILE+B3)	CC162	11C23	63212		LWA
.	CC163			SUB	A*L(RECFILE+B3)	CC163	21C13	63212		
.	CC164			SUB	A*3*ANEG	CC164	217CC	CCCC3		IS RECCRC 3 CR MORE WORDS
.	CC165			JP	AMPLE	CC165	61CC	CC173		YES
.	CC166			STR	BC*CPU(EXCESS)	CC166	16C6C	CC227		
.	CC167			STR	B3*LI(EXCESS)	CC167	1631C	CC227		NC. PRINT RECFILE RELATIVE LO CATION
.	CC170			RJP	LOGNOWRITE	CC170	65CC	CC23C		CLEAR CUT BUFFER CONTROL WORD
.	CC171			CL	W(RECFILE+B3)	CC171	16C33	63212		
.	CC172			EXIT		CC172	61C1C	CC161		
.	CC173		AMPLE	ENT	A*L(RECFILE+B3)	CC173	11013	63212		SET UP PARITY INDICATOR ADDRES S
.	CC174			ACC	A*1	CC174	2CCCC	CCCC1		
.	CC175			STR	A*L(PUTSEVN)	CC175	15C1C	CC2C2		
.	CC176			STR	A*L(PUTONES)	CC176	15C1C	CC2C4		EXAMINE FARTY INDICATOR
.	CC177			ENT	A*W(INDPARITY)*AZERC	CC177	1143C	CC475		
.	CC200			JP	PUTSEVN	CC200	61CC	CC2C2		
.	CC201			JP	PUTNES	CC201	61CC	CC2C4		
.	CC202		PUTSEVN	STR	BC*CPW(0)	CC202	16C7C	CCCC		
.	CC203			JP	RETNWR	CC203	61CC	CC2C5		CCCC PARITY
.	CC204		PUTNES	CL	W(0)	CC204	16C3C	CCCC		
.	CC205			ENT	A*U(RECFILE+B3)	CC205	11C23	63212		
.	CC206			SUB	A*L(RECFILE+B3)	CC206	21C13	63212		TCTAL WCRCDS IN THIS FRAME
.	CC207			ACC	A*W(ITEREGS)	CC207	2CC3C	CC445		HAVE WE EXCECCEC LIMIT FRAME
.	CC210			CCM	A*W(LIMIT)*VMORE	CC210	C473C	CC444		

..... SPUKT CLTPUT NO. 21C
 JCO+AMM*04/28/65
 RECORDING

CARD	LI	IO	LAPEL	TA STATEMENT	LOC	F	JKB	Y	NCTES
•	CC211			JP CANTWRITE	00211	61CCC	CC223		YES
•	CC212			STR A*(THEREGS)	00212	15C3C	CC445		NC+STORE NEW TOTAL
•	CC213	KWRITE		EX-FCI TPCPN*(FCTWRITE)	00213	1367C	CC53C		SET UP INTERRUPT ENTRANCE
•	CC214			PUT W(SWHRJP)*W(TAPEEXTINT)	00214	10C30	CC474		
•	CC215			OUT TPCPN*(RECFILE+B3)	00215	14C3C	CC335		
•	CC216			STR BC*CPW(RECFILE+B3)	00216	74673	63212		SET TC -C
•	CC217			STR B3*L(KEEPB3)	00217	16073	63212		
•	CC218			RPL Y+1*L(WRITE)	00218	1631C	CC523		
•	CC219			EXIT	00219	36C1C	CC161		
•	CC220			STR B0*CPU(EXCESS)	00220	61C1C	CC161		SET TC PRINT
•	CC221	CANTWRITE		STR B3*L(EXCESS)	00221	16C6C	CC227		STORE RELATIVE LOCATION IN REC FILE
•	CC222			CL W(RECFILE+B3)	00222	16310	CC227		CLEAR OUT BUFFER CONTROL WORD
•	CC223			EXIT	00223	61C1C	CC161		U() IS -C IF LIMIT EXCEEDED, L
•	CC224			ENT C	00224	00000	CCCCC		() HAS RECFILE SLCT
•	CC225	EXCESS		ENTRY	00225	61CCC	CCCCC		LOG WHEN TCC MUCH RECORDING RE
•	CC226			CL A*	00226	11CCC	CCCCC		QUEST
•	CC227	LCNCWRITE		CL B6*	00227	126CC	CCCCC		RELATIVE LOCATION IN RECFILE
•	CC228			ENT C*(EXCESS)	00228	10C1C	CC227		
•	CC229			ACD C*1	00229	26CCC	CCCCC		
•	CC230			LSH C*150	00230	65CCC	CC117		
•	CC231	MCVCOVER		LSH A*3	00231	66000	CCCCC		
•	CC232			LSH A*3	00232	67CCC	CCCCC		
•	CC233			SEL SET*60	00233	50CCC	CC161		
•	CC234			BSK B6*4	00234	716CC	CC161		
•	CC235			JP MVEOVER	00235	61CCC	CC236		
•	CC236			STR A*(BCWNO)	00236	1503C	CC261		
•	CC237			RJP U(PRLOG)	00237	65020	63423		
•	CC238			8C LCGLIMIT	00238	00C1C	CC252		
•	CC239			I C	00239	00C01	CCCCC		
•	CC240			JP \$+1	00240	61CCC	CC25C		
•	CC241			CL W(EXCESS)	00241	16C3C	CC227		
•	CC242			EXIT	00242	61C1C	CC23C		
•	CC243	LGGLIMIT		FC 7*10000 DEC WORD MAXIMUM REACHED	00243	61242	42424		
•	CC244			0 C	00244	05111	21CC5		
•	CC245			ENTRY	00245	34242	711C5		
•	CC246			PUT 1*(INDPARITY)	00246	22C63	51622		
•	CC247			CL W(MSGSWITCH)	00247	3222C	52712		
•	CC248			CL U(INTERLCKSW)	00248	61011	51211		
•	CC249			EXIT	00249	65C63	1C5C5		
•	CC250			ENTRY	00250	00C00	CCCCC		
•	CC251			0 C	00251	61CCC	CCCCC		
•	CC252	BC*NO		ENTRY	00252	10CCC	CCCCC		
•	CC253	PARERRCQ		PUT 1*(INDPARITY)	00253	14C3C	CC475		
•	CC254			CL W(MSGSWITCH)	00254	16C3C	CC463		
•	CC255			CL U(INTERLCKSW)	00255	16C2C	6346C		
•	CC256			EXIT	00256	61C1C	CC262		
•	CC257			ENTRY	00257	61CCC	CCCCC		
•	CC258	NORMAL			00258	61CCC	CCCCC		

CARDS	L1	IC	LABEL	TA	STATEMENT	LCC	F	J	K	Y	ACTES
•	CC261			CL	W(INDPARITY)	CC271	16C3C	CC475			
•	CC262			CL	W(MSGSWITCH)	CC272	16C3C	CC463			HEADING RECRC IS WRITTEN
•	CC263			CL	U(INTERLCKSW)	CC273	16C2C	6346C			ENABLE INTERLCK ROUTINE
•	CC264			EXIT		CC274	61C1C	CC27C			
•	CC265	TLR		ENTRY		CC275	61C0C	CCCC			TAPE LIMIT REACHEE
•	CC266			CL	W(INDPARITY)	CC276	16C3C	CC475			
•	CC267			STR	PC+CPL(MSGSWITCH)	CC277	16C5C	CC463			E.C.T. NEXT RECRC MUST BE PEA UING
•	CC270			CL	U(MSGSWITCH)	CC30C	16C2C	CC463			SET INTERLCK PRINT ENABLE
•	CC271			CL	U(INTERLCKSW)	CC301	16C2C	6346C			ENABLE INTERLCK ROUTINE
•	CC272			ENT	A*W(TAPENO)	CC302	11C3C	CC452			
•	CC273			ACC	A*1	CC303	2C0C0	CCCCI			
•	CC274			STR	A*W(TAPENO)	CC304	15C3C	CC452			
•	CC275			ENT	A*L(FCWRITE)	CC305	11C1C	CC53C			EXAMINE PRESENT UNIT NUMBER
•	CC276			RSH	A*3	CC306	2C0C0	CCCC			
•	CC277			JP	UNIT3*AZERO	CC307	6C4C0	CC331			
•	CC300	UNIT2		PUT	4*L(FCWRITE)	CC310	1C0C0	CCCC4			SET TC SERVC 2
•	CC301			PUT	5C562*L(UNITNO)	CC311	14C1C	CC53C			
•	CC302			PUT	W(REWINT3)*W(TAPEEXTINT)	CC312	1C0C0	5C562			SET TC PRINT 2 FOR UNIT NUMBER
•	CC303			EX-FCI	TPCHN*W(REWIND3)	CC313	14C1C	CC472			
•	CC304			RJP	PUTBACK	CC316	1367C	CC45C			
•	CC305			RILJP	LIRECINTRPT	CC317	65C0C	CC557			
•	CC306	REWINT3		RJP	REWCUT3	CC320	6C11C	CC135			
•	CC307	REWCUT3		ENTRY		CC321	65C0C	CC322			
•	CC310			CL	W(RUSYSTATUS)	CC323	16C3C	CC473			
•	CC311			RJP	SAVEREG	CC324	65C0C	CC551			
•	CC312			STR	TPCHN*W(NTOUSE)	CC325	1767C	CC453			
•	CC313			RJP	FEAD	CC326	65C0C	CC426			
•	CC314			RJP	PUTBACK	CC327	65C0C	CC557			
•	CC315			RILJP	LIREWOUT3	CC330	6C11C	CC322			SET TC SERVC 3
•	CC316	UNIT3		PUT	1C*L(FCWRITE)	CC331	1C0C0	CCCC			
•	CC317			PUT	5C563*L(UNITNO)	CC332	14C1C	CC53C			
•	CC32C			PUT	W(REWINT2)*W(TAPEEXTINT)	CC333	1C0C0	5C563			SET TC PRINT 3 FOR UNIT NUMBER
•	CC321			EX-FCI	TPCHN*W(REWIND2)	CC335	1C0C0	CC342			SET UP INTERRUPT ENTRANCE
•	CC322			RJP	PUTBACK	CC336	14C3C	CCCC5			
•	CC323			RILJP	LIRECINTRPT	CC337	1367C	CC451			
•	CC324	REWINT2		RJP	REWCUT2	CC340	65C0C	CC557			
•	CC325	REWCUT2		ENTRY		CC341	6C11C	CC135			
•	CC326			CL	W(RUSYSTATUS)	CC342	65C0C	CC343			
•	CC327			RJP	SAVEREG	CC343	61C0C	CCCC			
•	CC33C			STR	TPCHN*W(NTOUSE)	CC344	16C3C	CC473			
•	CC331			RJP	FEAD	CC345	65C0C	CC551			
•	CC332			RJP	PUTBACK	CC346	1767C	CC453			
•	CC333	SETUPHEAD		RILJP	LIREWOUT2	CC347	65C0C	CC426			
•	CC334			ENTRY		CC350	65C0C	CC557			
•	CC335			PUT	W(TAPENO)*W(HEADBLOCK)	CC351	6C11C	CC343			
•						CC352	61C0C	CCCC			
•						CC353	1C0C0	CC452			
•						CC354	14C3C	CC377			

CARDS	LI	ID	LABEL	TA	STATEMENT	LOC	F	JKB	Y	ACTES
	CC336		AGAIN		MCVE 16D*EXPNAME*HEADBLOCK*1	00355	12700	CCC17		
						00356	10037	63350		
						00357	14037	CC400		
						00360	72700	CC356		
	CC337		VERIT		PUT W(YEARMONTH)*W(HEADBLOCK*17D)	00361	10030	63147		
						00362	14030	CC420		
	CC340				PUT W(DAY)*W(HEADBLOCK*1ED)	00363	10030	63150		
						00364	14030	CC421		WHICH CEL PGM.
	CC341				PUT W(SYSTAT2)*W(HEADBLOCK*190)	00365	10030	63314		
						00366	14030	CC422		
	CC342				PUT W(CELBOOY)*W(HEADBLOCK*200)	00367	10030	63113		
						00370	14030	CC423		
	CC343				PUT W(CELBOOY*1)*W(HEADBLOCK*210)	00371	10030	63114		
						00372	14030	CC424		
	CC344				PUT W(CELBOOY*2)*W(HEADBLOCK*220)	00373	10030	63115		
						00374	14030	CC425		
	CC345				EXIT	00375	61010	CC352		
	CC346		FORKEY		FC 1*TITLE	00376	31163	12112		
	CC347		HEADBLOCK		RESERVE 230	00377	CC000	CCCCC		
	CC350		HEAD		ENTRY	00426	61000	CCCCC		
	CC351				TERM TPCN*OUTPUT	00427	67640	CCCCC		
	CC352				PLT W(SWHRJP)*W(TAPEEXTINT)	00430	10030	CC474		SET UP INTERRUPT ENTRANCE
						00431	14030	CC355		
	CC353				EX-FCI TPCN*W(FCIWRITE)	00432	13670	CC530		
	CC354				NC-OP	00433	12000	CCCCC		
	CC355				CUT TPCN*W(BCWHEAD)	00434	74670	CC443		
	CC356				EXIT	00435	61010	CC426		
	CC357		HEADGAIN		ENTRY	00436	61000	CCCCC		
	CC360				ENT A*IX(SYSTAT1)*APCS	00437	11650	63313		
	CC361				RJP HEAD	00440	65000	CC426		
	CC362				RJP PUTBACK	00441	65000	CC557		
	CC363				RILJP L(RECINTRPT)	00442	60110	CC135		
	CC364		BC*HEAD		U-TAG HEADBLOCK*22D*FCRKEY	00443	CC425	CC376		
	CC365		LIMIT		CC00023*20	00444	CCCCC	23420		
						00445	CCCCC	CCCCC		
	CC366		THEREGS		O C	00446	12300	CCCCC		
	CC367		EOFCN3		12300	00010				
	CC370		EOFCN2		12300	00004				
	CC371		RE*NO3		31100CCCC10	00450	31100	CCCCC		
	CC372		RE*NO2		31100CCCC04	00451	31100	CCCCC		
	CC373		TAFEND		O C	00452	CCCCC	CCCCC		
	CC374		NOTUSE		O C	00453	CCCCC	CCCCC		
	CC375		INTERLOCK		ENTRY	00454	61000	CCCCC		
						00455	67640	CCCCC		
	CC376				TERM TPCN*OUTPUT	00456	11520	63460		
	CC377				ENT A*U(INTERLOCKSW)*ANDI					
	CC400				STR PC*CPW(MSGSWITCH)	00457	16070	CC463		
	CC401				RJP PUTBACK	00460	65000	CC557		
	CC402				CL WIRELEASESW	00461	16030	63156		
	CC403				RILJP L(RECINTRPT)	00462	60110	CC135		

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 RECCORDING
 SPURT CLTPUT NO. 21C
 JCD+AAH*04/28/65

CAROS	LI	IO	LAPEL	TA	STATEMENT	LOC	F	JKR	Y	NCIES
.	CC404	MSGSWITCH	0	C		CC463	CCCC	CCCC		
.	CC405	INTERLOCKM	FC	6	CORRECT INTERLOCK CN TAPE UNIT	CC464	1C242	72712		
						CC465	1C310	51623		
						CC466	31122	72124		
						CC467	1C2CC	52423		
						CC470	CS31C	62512		
						CC471	C5322	31631		
.	CC406	UNITNO	FC	1*	2	CC472	C5C5C	5C562		SET TO 0 BY INTERRUPT, -0 BY W
.	CC407	BUSYSSTATUS	0			CC473	CCCC	CCCC		CRKR
.	CC41C	SWPRJP	RJP	RECINTRPT		CC474	65CCC	CC135		FCR EXT INT
.	CC411	INIPARITY	0	C		CC475	CCCC	CCCC		
.	CC412	DRMSG	FC	1*A		CC476	C6C5C	5C5C5		
.	CC413		-C	\$+1		CC477	77777	CC5CC		
.	CC414		FC	C	SYSTEM DATA RECORCING...COMPLETE	CC500	3C363	C3112		
			0)	PARTIAL(1)	NONE(2)	0				
						CC501	22C51	1C631		
						CC502	C6C52	7121C		
						CC503	24271	11623		
						CC504	14757	5751C		
						CC505	24222	52112		
						CC506	31125	1244C		
						CC507	C525C	62731		
						CC510	16C62	15161		
						CC511	4C552	32423		
						CC512	12516	24C05		
						CC513	24C5C	5C5C5		
						CC514	77777	77777		
						CC515	11C5C	5C505		
						CC516	CC011	CC521		
						CC517	CCCC	CCCC		
						CC520	CCCC	CCCC		
						CC521	CCCC	CCCC		
						CC522	CCCC	CCCC		
						CC523	CCCC	CCCC		
						CC524	CCCC	CCCC		
						CC525	CCCC	CCCC		
						CC526	CCCC	CCCC		
						CC527	CCCC	CCCC		
						CC530	12C0C	CCCC		HIGH DENSITY BINARY(UNIT 2)
						CC531	CCCC	CC262		SW=C ILLEGAL
						CC532	CCCC	CC262		SW=1 ILLEGAL
						CC533	CCCC	CC262		SW=2 ILLEGAL
						CC534	CCCC	CC262		SW=3 ILLEGAL
						CC535	CCCC	CC262		SW=4 (2C) CSSE
						CC536	CCCC	CC436		REINICING
						CC537	CCCC	CC262		SW=6 (3C) SCCE
						CC540	CCCC	CC262		SW=7 (34) FWE
						CC541	CCCC	CC27C		SW=8 (4C)
						CC542	CCCC	CC262		SW=9 (44) REPEATCP
						CC543	CCCC	CC262		SW=1C (5C) CSUE
						CC544	CCCC	CC262		SW=11 (54) ECF
						CC545	CCCC	CC275		SW=12 (6C)
						CC546				

SPURT CLIPUT NO. 21C
JDD+AAW#04/28/65

RECORDING

CARDS	LI	ID	LAPEL	TA STATEMENT	LDC	F	JKB	Y	NOTES
•	CC447			O PARERROR	CC546	CCCC	CC262		SW=13 ILLEGAL
•	CC450			O PARERROR	CC547	CCCC	CC262		SW=14 (7C) AFC
•	CC451			O INTERLOCK	CC550	CCCC	CC454		SW 15 (74) ILF
•	CC452	SAVEREG		ENTRY	CC551	61CC	CCCC		
•	CC453			STR A*(MPA)	CC552	15C3C	CC524		
•	CC454			STR C*(MPQ)	CC553	14C3C	CC525		
•	CC455			STR R3*(MPB3)	CC554	1631C	CC527		
•	CC456			STR R4*(MPB4)	CC555	1641C	CC526		
•	CC457			EXIT	CC556	61C1C	CC551		
•	CC460	PUTBACK		ENTRY	CC557	61CC	CCCC		
•	CC461			ENT A*(MPA)	CC560	11C3C	CC524		
•	CC462			ENT C*(MPQ)	CC561	10C3C	CC525		
•	CC463			ENT R3*(MPB3)	CC562	1231C	CC527		
•	CC464			ENT R4*(MPB4)	CC563	1241C	CC526		
•	CC465			EXIT	CC564	61C1C	CC557		
•	CC466			RESERVE 1	CC565	CCCC	CCCC		

END OF LISTING

JDD+AA*04/2E/65

RECORDING

LABEL	LCC	LABEL	LCC	LABEL	LCC
AS\$1111	CC356	ACQAZIM	63071	ACCELEV	63075
ACQUI	63427	ACTUALTIME	63142	ADSCN	63416
AESCN	63417	AGAIN	CC355	ALNGCFSEET	63517
AMBLE	CC173	ARCOFAZIM	63524	ARCCFDEC	63526
ARCCFELEV	63522	ARCOPRA	63530	ASKHEAC	CC104
ASTRDEC	63106	ASTORA	63105	ALPERECUAT	63341
AZELCTIME	63532	AZELBXSCAN	63500	AZIM	63053
AZIMCFSEET	63512	AZIMOUT	64000	AZIMCVER	63325
AZIMADD	63442	AZIMIN	75000	AZMTHSCAN	63501
BODYSIZE	63462	RCW	CC135	RCWHEAC	CC443
BCWNC	CC261	BLASTOFF	63146	BUSYSTATLS	CC473
COCN	63414	CCNTINU	CC153	CONVERTIME	63135
CORCT	63420	COSORIENT	63065	CGSAZEL	63070
CANTWRITE	CC223	CAZIM	63060	CELECCY	63113
CELCMPGM	63424	CELEV	63061	CELTIME	63133
CHCCR	63422	CHPAR	63431	CRANGE	63057
CRSSCFSEET	63516	CDNE	CC157	CCNRIT	CC147
DOPPCUT	66000	COPPAD	63444	DATANALYZE	63425
DAY	63150	CEC	63003	DECCFSEET	63515
DECOCT	63010	DECLINSCAN	63505	DELTATEE	63316
DRANS	CC515	CRMGS	CC476	DRMSGREPLY	CC521
DSECCNDS	63141	CUMSECTTG	63154	DYDMP	63421
EOFCN2	CC447	EFON3	CC446	ELEV	63054
ELEVCFSEET	63513	ELEVOUT	65000	ELEVADD	63443
ELEVIN	76000	ELVINSCAN	63502	ENCSME	CC122
EQUATOR	63323	ESTSHIFTED	63143	EXCESS	CC227
EXNAME	63350	FORKEY	CC376	FCITRITE	CC530
FINAL	CC033	FIRSTELEV	63104	FIRSTHRU	63153
FLATTENING	63337	FRAMESIZE	63101	FREQUENCY	63317
GCN	CC074	GEOCNLAT	63322	GFCCETLAT	63321
GMTWCDU24	63145	GMTSHIFTEC	63144	HCLCNCHCLC	63511
HOURLMINUTE	63137	FOURREG	63151	HEAC	CC426
HEADGAIN	CC436	HEADLOCK	CC377	HEIGHT	63326
ID1CRADIC	66777	ID11RADIO	67776	IC12RACIC	67777
ID13RADIC	70775	ID14RADIO	70776	IC15RADIC	71776
ID16RADIC	71777	ID17RADIO	72776	ID18RADIC	72777
ID19RADIC	73776	ID1ELCCR	63000	IC1ENTPNT	63410
ID1RADCOR	63050	ID1RADIC	63440	ID1RECR	63210
ID1SYSENT	77576	ID1SYSNAM	77676	ID1SYSPAR	63310
ID1TIME	63130	ID2ORADIO	73777	ID2IRADIC	74776
ID22RADIC	74777	ID23RADIO	75776	ID24RADIC	75777
ID25RADIC	76775	ID26RADIO	76776	ID2CELCRR	63001
ID2ENTPNT	63411	ID2RADCCR	63051	IC2RADIC	63441
ID2RECRD	63211	ID2SYSENT	77577	IC2SYSNAM	77677
ID2SYSPAR	63311	IC2TIME	63131	IC3RACIC	63776
IC4RADIO	63777	ID5RADIO	64776	IC6RADIC	64777
ID7RADIO	65776	ID8RADIO	65777	ID9RADIC	66776
INAZIMAD	63446	INDPARITY	CC475	INELEVACC	63447
INTER	63413	INTERAZIM	72000	INTERCOM	63426
INTERCOPR	74000	INTERELEV	73000	INTERLCK	CC454
INTERLOCKM	CC464	INTERLCKSW	63460	INTERRANGE	76777

SPURT OUTPUT NO. 211

JCD+AAM*04/28/65

RECORDING

LABEL	LCC	LABEL	LCC	LABEL	LCC	LABEL	LCC
KEEP83	00523	KMPERNH	63342	KWRITE	00213		
KYRCLEVEL	63110	LOOP1	00123	LCGLIMIT	00252		
LOGNWRITE	00230	LONGITUDE	63320	LIMIT	00444		
LSPERAU	63336	MOVEOVER	00236	MAINSWITCH	63334		
MCPFILLER	71000	MCPGM	63412	MILLSTNADC	63451		
MINREG	63152	MPA	00524	MP83	00527		
MP84	00526	MPQ	00525	MPRECINT	00002		
MSFREQ	63332	MSGSWITCH	00463	NCHEAC	00111		
NORMAL	00270	NOTUSE	00453	NCWRITE	00131		
NPERAU	63340	POLE	63324	PARERRCR	00262		
PERIODAZIM	63523	PERIODDEC	63525	PERIODELEV	63521		
PERIODRA	63527	PLOTP	63436	PLAMP	63434		
PREVIOUSIM	63461	PRLOG	63423	PUTCHES	00204		
PUTBACK	00557	PUTSEVN	00202	PUTATEAEBX	63507		
RCIATERACN	63506	ROTATERCRX	63510	RA	63002		
RACFFSET	63514	RAOT	63007	RACARMCE	63312		
RACRSCAN	63503	RADECOTIME	63531	RACIOCEC	63541		
RACIMETER	63102	RADIORA	63540	RADIUS	63006		
RADIUSDOT	63011	RANGE	63052	RANGECUT	70777		
RANGEADO	63445	RANGEDOT	63062	RASCTNSCAN	63504		
RDTR	63430	ROXX	63433	RECCD	00072		
RECORDING	00000	RECORDSIZE	63112	RECAZIM	67000		
RECELEV	70000	RECFLE	63212	RECINTRPT	00135		
RECRD	63415	RECORDSWICH	63155	RELEASESW	63156		
RETNW	00205	REWDUT2	00343	REWCUT3	00322		
REWINT2	00342	REWINT3	00321	RENOC2	00451		
REWNO3	00450	SAVEREG	00551	SAZIM	63055		
SELETIME	63134	SECC	63005	SECCNDS	63140		
SELEV	63056	SETUPHEAD	00352	SIDERTIME	63012		
SINCRIENT	63064	SINAZEL	63066	SKIP	63331		
SRA	63004	SRADTIME	63136	STATUS	00522		
SHRJP	00474	SWTABLE	00531	SYNCTIMING	63542		
SYSCCMREG1	63452	SYSOOMREG2	63453	SYSOOMREG3	63454		
SYSCCMREG4	63455	SYSOOMREG5	63456	SYSOOMREG6	63457		
SYSENTRIES	77600	SYSNAMES	77700	SYSTAT1	63213		
SYSTAT2	63314	SYSTATD	63315	TAPE2	00040		
TAPF3	00055	TAPEEXTINT	00035	TAPENC	00452		
TELLNHEAD	00016	TEWDUT2	00070	TEWCUT3	00053		
TEWJP2	00062	TEWJP3	00045	TEWY2	00063		
TEWY3	00046	TEREGS	00445	TIMECCRR	63107		
TIMECODE	63103	TIMEP	63435	TIMECHCLC	63520		
TLK	00275	TRUERANGE	63063	TRUETIME	63132		
TTYSTATUS	63111	TWOSECCOP	63017	UNIT2	00310		
UNIT3	00331	UNITNO	00472	VELCEFLIGHT	63335		
VERIT	00361	VIZDEC1	63014	VIZDEC2	63016		
VIZRA1	63013	VIZRA2	63015	WFCRC	63432		
WFOCC	63450	WFFREQ	63333	WRITE	00161		
YEARMONTH	63147	YRTRAN	63327	ZRTRAN	63330		

END OF LISTING

JCO+AAM*04/28/65

RECORDING

LABEL	LCC	LABEL	LCC	LABEL	LCC
RECORDING	CC000	MRECINT	CC002	TELLNAHEAD	CC016
FINAL	CC033	TAPEEXTINT	CC035	TARE2	CC04C
TEWJP3	CC045	TEWRT3	CC046	TEWCUT3	CC053
TAPE3	CC055	TEWJP2	CC062	TEWRT2	CC063
TEWCUT2	CC070	RECORO	CC072	GCCN	CC074
ASKHEAD	CC104	NCHEAD	CC111	ENCSCME	CC122
LCUPI	CC123	NCWRITE	CC131	RECINTRPT	CC135
BCW	CC135	CONWRIT	CC147	CONTINU	CC153
CCNE	CC157	WRITE	CC161	AMRE	CC173
RUTSEVN	CC202	PUTONES	CC204	RETNR	CC205
KWRITE	CC213	CANTWRITE	CC223	EXCESS	CC227
LUCNDWRITE	CC230	MOVEOVER	CC236	LOGLIMIT	CC252
BCWNC	CC261	PARERROR	CC262	NCRPAL	CC270
TLR	CC275	UNIT2	CC310	REWINT3	CC321
REWCUT3	CC322	UNIT3	CC331	REWINT2	CC342
REWCUT2	CC343	SETUPHEAD	CC352	AGAIN	CC355
AS\$1111	CC356	VERIT	CC361	FORKEY	CC376
HCACBLOCK	CC377	PEAO	CC426	HEACAGAIN	CC436
BCWHEAD	CC443	LIMIT	CC444	THEREGS	CC445
EFON3	CC446	EFON2	CC447	REWND3	CC45C
REWND2	CC451	TAPENO	CC452	NCUSE	CC453
INTERLOCK	CC454	MSGSWITCH	CC463	INTERLCKM	CC464
UNITNO	CC472	BUSYSTATUS	CC473	SWPRJR	CC474
INCPARITY	CC475	CRMSG	CC476	DRANS	CC515
ORMSREPLY	CC521	STATUS	CC522	KEEPB3	CC523
MPA	CC524	MPQ	CC525	MRP4	CC526
MPB3	CC527	FCWRITE	CC530	SWTABLE	CC531
SAVEREG	CC551	RUTBACK	CC557	ICICECCR	CC53C
IO2CELCOR	63001	RA	63002	CEC	63C03
SRA	630C4	SCEC	630C5	RACIUS	63C06
RACOT	63007	CECOT	63010	RACIUSCCT	63C11
SIDERTIME	63012	VIZRA1	63013	VIZCECI	63C14
VIZRA2	63015	VIZOEC2	63016	TWCSECCP	63C17
IOIRADCOR	63050	ID2RADCOR	63051	RANGE	63C52
AZIM	63053	ELEV	63054	SAZIM	63C55
SELEV	63056	CRANGE	63057	CAZIM	63C6C
CELEV	63061	RANGEOT	63062	TRUERANGE	63C63
SINCRIENT	63064	COSORIEN	63065	SINAZEL	63C66
COSAZEL	63070	ACQAZIM	63071	ACCELEV	63C75
FRAMESIZE	63101	RADIOMETER	631C2	TIMECCCE	63103
FIRSTELEV	631C4	ASTRORA	63105	ASTRODEC	63106
TIMECORR	631C7	KYBRDLEVEL	6311C	TYSTATUS	63111
RECCRSIZE	63112	CELBOOY	63113	ICLTIME	6313C
IOZTIME	63131	TRUETIME	63132	CELTIME	63133
SCSELTIME	63134	CONVERTIME	63135	SRACTIME	63136
HOURMINUTE	63137	SECONOS	6314C	CSECCNC	63141
ACTUALTIME	63142	ESTSHIFTE	63143	GMTSHIFTE	63144
GMTMCCU24	63145	PLASTOFF	63146	YEARMCNTF	63147
DAY	63150	FOURREG	63151	MINREG	63152
FIRSTHRU	63153	CUMSECTTG	63154	RECRESWICH	63155
RELEASESW	63156	ICIRECRD	6321C	IC2RRCP	63211

SPURT CLTPUT ND. 212

JDD+AM*04/28/65

RECORDING

LABEL	LCC	LABEL	LCC	LABEL	LCC	LABEL	LCC
RECFILE	63212	IO1SYSPAR	63310	IO1SYSPAR	63310	IO1SYSPAR	63310
RACARMODE	63312	SYSTAT1	63313	SYSTAT2	63314	SYSTAT2	63314
SYSTAT0	63315	CELTATEE	63316	FREQUENCY	63317	FREQUENCY	63317
LONGITUDE	63320	GEOOETLAT	63321	GECCENLAT	63322	GECCENLAT	63322
EQUATOR	63323	POLE	63324	AZIMOVER	63325	AZIMOVER	63325
HEIGHT	63326	YRTRAN	63327	ZRTRAN	63330	ZRTRAN	63330
SKIP	63331	MSREQ	63332	WFFREQ	63333	WFFREQ	63333
MAINSWITCH	63334	VELOFLIGHT	63335	LSPERAU	63336	LSPERAU	63336
FLATTENING	63337	NPERAU	63340	AUPERECUAT	63341	AUPERECUAT	63341
KMPERNM	63342	EXPNAME	63350	IC1ENTPNT	63410	IC1ENTPNT	63410
IO2ENTPNT	63411	MCPGM	63412	IC1ENTPNT	63413	IC1ENTPNT	63413
COCEN	63414	REGRO	63415	ACSCN	63416	ACSCN	63416
AESCN	63417	CORCT	63420	DYCMP	63421	DYCMP	63421
CHCCR	63422	PRLOG	63423	CELCCMPGM	63424	CELCCMPGM	63424
DATANALYZE	63425	INTERCOM	63426	ACCU	63427	ACCU	63427
RCMTR	63430	CHPAR	63431	WFCRD	63432	WFCRD	63432
RDXXX	63433	PLANP	63434	TIMEP	63435	TIMEP	63435
PLCTP	63436	IC1RAOIO	63440	IC2RADIC	63441	IC2RADIC	63441
AZIMADO	63442	ELEVADO	63443	OCPPADC	63444	OCPPADC	63444
RANGEADD	63445	INAZIMADO	63446	INELEVACC	63447	INELEVACC	63447
WFACD	63450	MILLSTNADO	63451	SYSCGMREG1	63452	SYSCGMREG1	63452
SYSCGMREG2	63453	SYSCGMREG3	63454	SYSCGMREG4	63455	SYSCGMREG4	63455
SYSCGMREG5	63456	SYSCGMREG6	63457	INTERLCKSM	63460	INTERLCKSM	63460
PREVIOUSIM	63461	POOYSIZE	63462	AZELRXSCAN	63500	AZELRXSCAN	63500
AZTHSCAN	63501	ELVTNSCAN	63502	RACBXSCHAN	63503	RACBXSCHAN	63503
RASCTNSCAN	63504	CECLNSCAN	63505	ACTATERACN	63506	ACTATERACN	63506
ROTATEAEBX	63507	RGATERORX	63510	HCLCNCHCLD	63511	HCLCNCHCLD	63511
AZIMCFSET	63512	ELEVOFFSET	63513	RACFFSET	63514	RACFFSET	63514
DECCFFSET	63515	CRSSOFFSET	63516	ALNGOFFSET	63517	ALNGOFFSET	63517
TIMETOHOLD	63520	PERIOOELEV	63521	ARCCFELEV	63522	ARCCFELEV	63522
PERICOAZIM	63523	ARCOFAZIM	63524	PERICDEC	63525	PERICDEC	63525
ARCCFDEC	63526	PERIOORA	63527	ARCCFRA	63530	ARCCFRA	63530
RADECOTIME	63531	AZELOTIME	63532	RACICRA	63540	RACICRA	63540
RACICDEC	63541	SYNCTIMING	63542	IC3RADIC	63776	IC3RADIC	63776
IO4RADIC	63777	AZIMOUT	64000	IC5RADIC	64776	IC5RADIC	64776
IO6RADIC	64777	ELEVOUT	65000	IC7RADIC	65776	IC7RADIC	65776
IO8RADIC	65777	COPOUT	66000	IC9RADIC	66776	IC9RADIC	66776
IO10RADIC	66777	RECAZIM	67000	IC11RADIC	67776	IC11RADIC	67776
IO12RADIC	67777	RECELEV	70000	IC13RADIC	70775	IC13RADIC	70775
IO14RADIC	70776	RANGEOUT	70777	MCPFILLER	71000	MCPFILLER	71000
IO15RADIC	71776	IC16RADIC	71777	INTERAZIM	72000	INTERAZIM	72000
IO17RADIC	72776	IC18RADIC	72777	INTERELEV	73000	INTERELEV	73000
IO19RADIC	73776	IC20RADIC	73777	INTERDCPF	74000	INTERDCPF	74000
IO21RADIC	74776	IC22RADIC	74777	AZIMIN	75000	AZIMIN	75000
IO23RADIC	75776	IC24RADIC	75777	ELEVIN	76000	ELEVIN	76000
IO25RADIC	76775	IC26RADIC	76776	INTERRANGE	76777	INTERRANGE	76777
IO1SYSENT	77576	IC2SYSENT	77577	SYSENTRIES	77600	SYSENTRIES	77600
IO1SYSNAM	77675	IC2SYSNAM	77677	SYSNAMES	77600	SYSNAMES	77600

END OF LISTING

CARDS	LL IO LABEL	TA STATEMENT	LOC	F	JKB Y	NOTES
.	COC00	PROGRAM J00*2/1/65	00000	00027	00022	MILLSTONE TO HAYSTACK
.	COC01	COMMENT COUPLE	00001	34132	42711	
.	COC02	U-TAG WFRUN*WFINIT	00002	61000	00000	
.	COC03	FO 1*WFORO	00003	11030	63333	7750 B14
.	COC04	ENTRY	00004	02000	00001	843 FOR OIV
.	COC05	ENT A*W(WFFREQ)	00005	10000	00000	
.	COC06	RSH A*1	00006	23030	63317	10000 B14 = QUOT B29 IN Q
.	COC07	CL C*	00007	11000	00000	
.	COC10	CIV W(FREQUENCY)	00010	23000	01750	RO TO KCS
.	COC11	CL A*	00011	14030	00315	B29
.	COC12	CIV 10000	00012	11030	63332	MCS B14 = B44 AC
.	COC13	STR Q*W(FRATIO)	00013	10000	00000	
.	COC14	ENT A*W(MSFREQ)	00014	03000	00001	B43
.	COC15	CL C*	00015	23030	63317	B14
.	COC16	RSH AQ*1	00016	14030	00304	B29
.	COC17	CIV W(FREQUENCY)	00017	10030	00316	
.	COC20	STR Q*W(MSRATIO)	00020	14030	00054	
.	COC21	PUT W(ANSMINT)*W(54)	00021	75630	00317	
.	COC22	IN C14*W(MSINBCW)*MONITOR	00022	61010	00002	
.	COC23	EXIT	00023	61000	00000	
.	COC24	MSININT	00024	17630	00326	
.	COC25	STR C14*W(STATUS)	00025	75630	00317	
.	COC26	IN C14*W(MSINBCW)*MONITOR	00026	60110	00023	
.	COC27	RILJP L(MSININT)	00027	61000	00000	
.	COC30	ENTRY	00030	11010	63450	
.	COC31	ENT A*L(WFACD)	00031	15010	00070	
.	COC32	STR A*L(STRAE1)	00032	15010	00074	
.	COC33	STR A*L(STRAE2)	00033	15010	00075	
.	COC34	STR A*L(STRAE3)	00034	15010	00076	
.	COC35	STR A*L(STRAE4)	00035	15010	00103	
.	COC36	STR A*L(STRAE4)	00036	15010	00202	
.	COC37	STR A*L(STRAE4)	00037	21000	00002	RETRIEVE STORED WF A + E
.	COC40	SUB A*2	00040	15010	00141	
.	COC41	STR A*L(STRDOP)	00041	20000	00001	
.	COC42	ADD A*1	00042	15010	00164	
.	COC43	STR A*L(STRRNG)	00043	11010	63442	PICK UP RIGHT AZ
.	COC44	ENT A*L(AZIMA00)	00044	21000	00001	
.	COC45	SUB A*1	00045	15010	00065	
.	COC46	STR A*L(PUPAZ1)	00046	11010	63443	PICK UP RIGHT EL
.	COC47	ENT A*L(ELEVA00)	00047	21000	00001	
.	COC50	SUB A*1	00050	15010	00071	
.	COC51	STR A*L(PUPEL1)	00051	11010	63444	FWA OF NEW UOPPLER
.	COC52	ENT A*L(IOPPAA00)	00052	20000	00372	
.	COC53	ADD A*2500	00053	15010	00110	
.	COC54	STR A*L(PUPDOPP)	00054	11010	63445	
.	COC55	ENT A*L(RANGEADC)	00055	15010	00152	
.	COC56	STR A*L(ORANGE)	00056	12500	00000	PICK UP 40 AZ + ELS
.	COC57	CL R5*	00057	12600	00000	INDEX STORES BY 3
.	COC60	CL R6*	00060	11000	40000	
.	COC61	ENT A*40000	00061	15030	00314	
.	COC62	STR A*W(INOXAZEL)	00062	11030	00330	
.	COC63	ENT A*140000				
.		LCCPRTRN				

CARDS	LL	IO	LABEL	TA	STATEMENT	LOC	F	JK8	Y	NOTES
.	C0C64			RPL	A*Y*W(LINOXAZEL)	00063	2403D	00314		
.	C0C65			ENT	B4*U(LINOXAZEL)	00064	1242D	00314		
.	C0C66		PLPAZ1	ENT	A*W(O*84)	00065	11034	00C00		
.	C0C67			RSH	AQ*4*QPOS	00066	0320D	00C04		
.	C0C7C			ADD	A*1	00067	20000	00C01		
.	C0C71		STRAE1	STR	A*L(O*86)	00070	15016	00C00		
.	C0C72		PLPEL1	ENT	A*W(O*84)	00071	11034	00C00		
.	C0C73			RSH	AQ*4*QPOS	00072	03200	00C04		
.	C0C74			ADD	A*1	00073	20000	00C01		
.	C0C75		STRAE2	STR	A*O(O*86)	00074	15026	00C00		
.	C0C76		STRAE3	ENT	Q*W(O*86)*QPOS	00075	10236	00C00		
.	C0C77		STRAE4	CL	U(O*86)	00076	16026	00C00		WAS NEG
.	C01C0			ENT	B6*86*3	00077	12606	00C03		
.	C01C1			BSK	B5*390	00100	71500	00C047		
.	C01C2			JP	LOOPRTRN	00101	61000	00C02		
.	C01C3			CL	B5	00102	12500	00C00		
.	C01C4		STRAEXTRA	STR	Q*W(O*86)	00103	14036	00C00		
.	C01C5			ENT	B6*86*3	00104	12606	00C03		
.	C01C6			BSK	B5*90	00105	71500	00C011		
.	C01C7			JP	STRAEXTRA	00106	61000	00C1C3		
.	C0110			CL	W(DOPSIGN)	00107	16030	00313		
.	C0111		PLPDGPP	ENT	Q*W(O)	00110	10030	00C00		DOPPLER BU IN CPS
.	C0112			STR	Q*W(SAVEDDOP)	00111	14030	003C5		HOLD FOR H.S. USE
.	C0113			SUB	Q*750000D*QPOS	00112	27630	00331		
.	C0114			RJP	COPNEC	00113	65000	00143		
.	C0115		RPFERE	MUL	W(FRATIO)	00114	22030	00315		FW/FHS X 1000 B29
.	C0116			LSH	AQ*1	00115	07000	00C01		KCS BD IN A
.	C0117			STR	A*Q	00116	15000	00C00		
.	C012C			CL	A*	00117	11000	00C00		EXTRACT UNITS DIGIT
.	C0121			DIV	10C	00120	23000	00U12		
.	C0122			STR	A*W(WFDOPLER)	00121	15030	00312		
.	C0123			CL	A*	00122	11000	00C00		
.	C0124			DIV	10C	00123	23000	00C12		
.	C0125			LSH	A*4	00124	06000	00C04		
.	C0126			ACD	A*W(WFDOPLER)	00125	20030	00312		TENS IN A 100S IN Q
.	C0127			LSH	Q*80	00126	05000	00U10		
.	C0130			ADD	Q*A	00127	26070	00C00		
.	C0131			STR	Q*W(WFDOPLER)	00130	14030	00312		
.	C0132			LSH	Q*130	00131	05000	00C015		
.	C0133			ADD	Q*W(WFDOPLER)	00132	26030	00312		
.	C0134			STR	Q*A	00133	14040	00C00		
.	C0135			SEL	SET*4000000000	00134	50030	00332		
.	C0136			ENT	Q*W(DOPSIGN)*QPOS	00135	10230	00313		
.	C0137			JP	SETDOPNEC	00136	61000	00147		
.	C0140		SETB3	ENT	B3*3	00137	12300	00C03		
.	C0141			RPT	SOC*ADDR	00140	70300	00C062		
.	C0142		STRDCP	STR	A*W(O*83)	00141	15033	00C00		
.	C0143			JP	CORANGEX	00142	61000	00151		
.	C0144		DCPNEC	ENTRY		00143	61000	00C00		
.	C0145			STR	PC*CPW(COPSIGN)	00144	16070	00313		
.	C0146			CP	Q*	00145	14000	00C00		
.	C0147			EXIT		00146	61010	00143		
.	C0150		SETCCPNEC	SEL	SET*0200010000	00147	50030	00333		

CARDS	LI	IO	LABEL	TA	STATEMENT	LOC	F	JKB	Y	NOTES
.	C0151		UCRANGEX	JP	SETB3	00150	61000	00137		
.	C0152		UCRANGEX	CL	A*	00151	11000	00000		
.	C0153		DCRANGE	ENT	Q*(O)	00152	10030	00000		RANGE IN N.M.
.	C0154			STR	Q*(SAVEORNG)	00153	14030	00306		
.	C0155			CIV	2500000	00154	23030	00334		MOOULO 50 KC
.	C0156			STR	A*Q	00155	15000	00000		
.	C0157			MUL	WIRFACTOR)*AZERO	00156	22430	00310		
.	C0160			SUB	A*240	00157	21000	00030		
.	C0161			SEL	SET*6000700C00	00160	50030	00335		
.	C0162			SEL	CL*17770000000	00161	52030	00336		
.	C0163			ENT	B*3	00162	12300	00003		
.	C0164			RPT	500*A00H	00163	70300	00062		
.	C0165		STRNG	STR	A*(O+B3)	00164	15033	00000		
.	C0166			PUT	LIMILLSTNAD)*L(STRMSAZ)	00165	10010	63451		
						00166	14010	00203		
						00167	14010	00216		
.	C0167			STR	Q*(STR3MOAZ)	00170	26000	00001		
.	C0170			ADD	Q*1	00171	14010	00207		
.	C0171			STR	Q*(STRMSEL)	00172	14010	00217		
.	C0172			STR	Q*(STR3MOEL)	00173	27000	00003		
.	C0173			SUB	Q*3	00174	14010	00234		
.	C0174			STR	Q*(STRMSRNG)	00175	26000	00001		
.	C0175			ADD	Q*1	00176	14010	00252		
.	C0176			STR	Q*(STRMSOOP)	00177	12400	00000		
.	C0177			CL	B*	00200	12500	00000		
.	C0200			CL	B*	00201	12600	00000		
.	C0201			CL	B*	00202	11035	00000		
.	C0202		PLWFAE	ENT	A*(O+B5)	00203	15016	00000		STORED WF E + A EVERY 3RD
.	C0203		STRMSAZ	STR	A*(O+B6)	00204	10000	00000		STORE EVERY 4TH AZIMUTH
.	C0204			CL	Q*	00205	03000	00017		
.	C0205			RSH	AQ*150	00206	50030	00337		ELEVATION CODE
.	C0206			SEL	SET*20000000000	00207	15036	00000		ELEVATION
.	C0207		STRMSEL	STR	A*(O+B6)	00210	12505	00003		
.	C0210			ENT	B*85+3	00211	12606	00004		
.	C0211			ENT	B*86+4	00212	71400	00047		
.	C0212			BSK	B*390	00213	61000	00202		
.	C0213			JP	PUNFAE	00214	12500	00000		
.	C0214			CL	B*	00215	05000	00017		
.	C0215			LSH	Q*150	00216	14036	00000		LAST AZIMUTH
.	C0216		STR3MOAZ	STR	Q*(O+B6)	00217	15036	00000		3 ADDITIONAL AZIMUTHS
.	C0217		STR3MOEL	STR	A*(O+B6)	00220	12606	00004		3 ADDITIONAL ELEVATIONS
.	C0220			ENT	B*86+4	00221	71500	00011		
.	C0221			BSK	B*90	00222	61000	00216		
.	C0222			JP	STR3MOAZ	00223	10030	00306		TWO WAY UNITS .2 MICROSECONDO
.	C0223		OCMSRNGE	ENT	Q*(SAVEORNG)	00224	11000	00000		S
						00225	23000	00005		TO UNITS OF 1 MICROSECONDO
.	C0224			CL	A*	00226	21700	00003		
.	C0225			CIV	5*	00227	26000	00001		
.	C0226			SUB	A*3*ANEG	00230	65000	00254		CONVERT 6 BCD CHAR ARG IN Q A
.	C0227			ACO	Q*1	00231	50030	00332		NS IN A
.	C0230			RJP	T06800	00232	12400	00004		PANGECODE
.	C0231			SEL	SET*40000000000					
.	C0232			ENT	B*4*					

CARDS	LI	ID	LABEL	TA	STATEMENT	LUC	F	JKB	Y	NOTES
•	C0233				RPT 50D*AD08	00233	70300	00062		
•	C0234		STRMSRNG		STR A*(I0+B4)	00234	15034	00000		
•	C0235		DCMSDCP		CL W(DPSIGN)	00235	16030	00313		
•	C0236				ENT Q*(SAVEQ00P)	00236	10030	00305		
•	C0237				SUB Q*7*000000*QPOS	00237	27630	00331		
•	C0240				RJP DOPNEG	00240	65000	00143		
•	C0241				MUL W(MSRATIO)	00241	22030	00304		
•	C0242				LSH AQ*1	00242	07000	00001		CPS 80 IN A
•	C0243				STR A*Q	00243	15000	00000		
•	C0244				RJP T06WCO	00244	65000	00254		
•	C0245				ENT Q*(DUPSIGN)*QPOS	00245	10230	00313		
•	C0246				SEL SET*6040000000	00246	50030	00340		NEG DOPPLER
•	C0247				SEL SET*6000000000	00247	50030	00341		POS DOPPLER
•	C0250				ENT B4*4	00250	12400	00004		
•	C0251				RPT 50D*AD08	00251	70300	00062		
•	C0252		STRMSDCP		STR A*(I0+B4)	00252	15034	00000		
•	C0253				JP L(WFRUN)	00253	61010	00027		
•	C0254		T(6BCD		ENTRY	00254	61000	00000		
•	C0255				CL W(ANS)	00255	16030	00307		
•	C0256				CL A	00256	11000	00000		
•	C0257				DIV 100	00257	23000	00012		U
•	C0260				STR A*(ANS)	00260	15030	00307		
•	C0261				CL A	00261	11000	00000		
•	C0262				DIV 100	00262	23000	00012		
•	C0263				LSH A*4	00263	06000	00004		T+U
•	C0264				RPL A*Y*(ANS)	00264	24030	00307		
•	C0265				CL A*	00265	11000	00000		
•	C0266				DIV 100	00266	23000	00012		
•	C0267				LSH A*80	00267	06000	00010		
•	C0270				RPL A*Y*(ANS)	00270	24030	00307		H+T+U
•	C0271				CL A*	00271	11000	00000		
•	C0272				DIV 100	00272	23000	00012		
•	C0273				LSH A*120	00273	06000	00014		
•	C0274				RPL A*Y*(ANS)	00274	24030	00307		T+H+T+U
•	C0275				CL A*	00275	11000	00000		
•	C0276				DIV 100*	00276	23000	00012		
•	C0277				LSH A*160	00277	06000	00020		
•	C0300				RPL A*Y*(ANS)	00300	24030	00307		
•	C0301				LSH Q*200	00301	05000	00024		
•	C0302				RPL Y+Q*(ANS)	00302	34030	00307		
•	C0303				EXIT	00303	61010	00254		
•	C0304		MSRATIO		C	00304	00000	00000		
•	C0305		SAVEDCOP		C	00305	00000	00000		
•	C0306		SAVEDRNG		C	00306	00000	00000		
•	C0307		ANS		C	00307	00000	00000		
•	C0310		RFACTCR		C102222000	00310	01022	22000		DEC
•	C0311		WFRANGE		C	00311	00000	00000		
•	C0312		WFOCPPLER		C	00312	00000	00000		
•	C0313		CCPSIGN		C	00313	00000	00000		
•	C0314		INDXAZEL		C	00314	00000	00000		
•	C0315		FRATIC		C	00315	00000	00000		
•	C0316		ANSMSINT		RJP MSININT	00316	65000	00023		

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CARDS	LI	ID	LAPEL	TA STATEMENT	LOC	F	JKB	Y	NOTES
.	C0317	MSINBCH	U-TAG	MS[NDATA+5*MSINCDATA	00317	00325	00320		
.	C0320	MSINDATA	RESERVE	6	00320	00000	00000		
.	C0321	STATUS	0		00326	00000	00000		
.	C0322		NO-OP		00327	12000	00000		DUMMY
					00330	00014	40000		
					00331	00026	70660		
					00332	40000	00000		
					00333	02000	10000		
					00334	00007	50220		
					00335	60007	00000		
					00336	17770	00000		
					00337	20000	00000		
					00340	60400	00000		
					00341	60000	00000		

END OF LISTING

..... WESTFORD SPURT OUTPUT NO. 211 JDO*2/1/65

LABEL	LOC	LABEL	LOC	LABEL	LOC	LABEL	LOC
AS\$S\$1111	00330	AS\$S\$1112	00331	AS\$S\$1113	00332	AS\$S\$1116	00335
AS\$S\$1114	00333	AS\$S\$1115	00334	AS\$S\$1116	00335	AS\$S\$1119	00340
AS\$S\$1117	00336	AS\$S\$1118	00337	AS\$S\$1119	00340	ACQCELEV	63075
AS\$S\$111A	00341	ACQAZIM	63071	ACQCELEV	63075	ADSCN	63416
ACQUI	63427	ACTUAL TIME	63142	ADSCN	63416	ANS	00307
AESCN	63417	ALNGOFFSET	63517	ANS	00307	ARCOFOEC	63526
ANMSINT	00316	ARCOFAZIM	63524	ARCOFOEC	63526	ASTRODEC	63106
ARCOFELEV	63522	ARCOFRA	63530	ASTRODEC	63106	AZELOTIME	63532
ASTRORA	63105	AUPEREQUAT	63341	AZELOTIME	63532	AZIMOFFSET	63512
AZELRXSCAN	63500	AZIM	63053	AZIMOFFSET	63512	AZIMAOO	63442
AZIMOUT	64000	AZIMOVER	63325	AZIMAOO	63442	BOOYSIZE	63462
AZIMIN	75000	AZIMTHSCAN	63501	BOOYSIZE	63462	CONVERTIME	63135
BLASTDFF	63146	COCON	63414	CONVERTIME	63135	COSAZEL	63070
CCRCT	63420	COSORIENT	63065	COSAZEL	63070	CELCOMPOM	63424
CAZIM	63060	CELBODY	63113	CELCOMPOM	63424	CHCOR	63422
CELEV	63061	CELTIME	63133	CHCOR	63422	CRSSOFFSET	63516
CHPAR	63431	CRANGE	63057	CRSSOFFSET	63516	OOPNEG	00143
CMMSDOP	00235	DOMSRNGE	00223	OOPNEG	00143	OOPSIGN	00313
CPPPOUT	66000	ODPPADO	63444	OOPSIGN	00313	OATANALYZE	63425
DCRANGE	00152	ODRANGEX	00151	OATANALYZE	63425	DECOFFSET	63515
CAY	63150	OEC	63003	DECOFFSET	63515	DELTAEE	63316
CECCOT	63010	DECLINSCAN	63505	DELTAEE	63316	OYOMP	63421
CSECONDS	63141	DUMSECITG	63154	OYOMP	63421	ELEVOUT	65000
ELEV	63054	ELEVOFFSET	63513	ELEVOUT	65000	ELVTNSCAN	63502
ELEVADO	63443	ELEVIN	76000	ELVTNSCAN	63502	EXPNAME	63350
EQUATOR	63323	ESTSHIFTED	63143	EXPNAME	63350	FLATTENING	63337
FIRSTELEV	63104	FIRSTTHRU	63153	FLATTENING	63337	FREQUENCY	63317
FRAMESIZE	63101	FRAIO	00315	FREQUENCY	63317	GMTMOO24	63145
GECCENLAT	63322	GEODETLAT	63321	GMTMOO24	63145	HOURMINUTE	63137
GMTSHIFTEC	63144	HOLONDHOL	63511	HOURMINUTE	63137	ID10RAOIO	66777
HOURREG	63151	HEIGHT	63326	ID10RAOIO	66777	ID13RAOIO	70775
IC11RAOIO	67776	ID12RAOIO	67777	ID13RAOIO	70775	ID16RAOIO	71777
IC14RAOIO	70776	ID15RAOIO	71776	ID16RAOIO	71777	ID19RAOIO	73776
IC17RAOIO	72776	ID18RAOIO	72777	ID19RAOIO	73776	ID1RAOOCUR	63050
IC1CELCOR	63000	ID1ENTPNT	63410	ID1RAOOCUR	63050	ID1SYSENT	77576
IC1RADIO	63440	ID1RECRD	63210	ID1SYSENT	77576	ID1TIME	63130
IC1SYSNAM	77676	ID1SYSPAR	63310	ID1TIME	63130	ID22RAOIO	74777
IC2RAOIO	73777	ID21RAOIO	74776	ID22RAOIO	74777	ID25RAOIO	76775
IC23RAOIO	75776	ID24RAOIO	75777	ID25RAOIO	76775	ID2ENTPNT	63411
IC26RAOIO	76776	ID2CELCOR	63001	ID2ENTPNT	63411	ID2RECRD	63211
IC2RADCCR	63051	ID2RADIO	63441	ID2RECRD	63211	ID2SYSPAR	63311
IC2SYSENT	77577	ID2SYSNAM	77677	ID2SYSPAR	63311	ID4RAOIO	63777
IC2TIME	63131	ID3RADIO	63776	ID4RAOIO	63777	ID7RAOIO	65776
IC5RADIC	64776	ID6RADIO	64777	ID7RAOIO	65776	INAZIMADO	63446
ICRRADIC	65777	ID9RADIO	66776	INAZIMADO	63446	INTER	63413
INDXAZEL	00314	INELEVADO	63447	INTER	63413	INTEROOPP	74000
INTERAZIM	72000	INTERCOM	63426	INTEROOPP	74000	INTERRANGE	76777
INTERLEV	73000	INTERLCKSW	63460	INTERRANGE	76777	LOOPTRN	00062
KMPERVM	63342	KYBROLEVEL	63110	LOOPTRN	00062	MAINSWITCH	63334
LCNGITUCE	63320	LSPERAU	63336	MAINSWITCH	63334	MILLSTNADO	63451
MCPFILLER	71000	MCPGM	63412	MILLSTNADO	63451		

SPURT OUTPUT NO. 211

J00*2/1/65

WESTFORD

LABEL	LOC	LABEL	LOC	LABEL	LOC
MINREG	63152	MSREQ	63332	MSINBCW	00317
MSINDATA	00320	MSININT	00023	MSRATIO	00304
MPERAU	63340	POLE	63324	PERIODAZIM	63523
PERIODDEC	63525	PERIODELEV	63521	PERIOORA	63527
PLOTP	63436	PLANP	63434	PREVIOUSUM	63461
PRLOG	63423	PUPAZI	00065	PUPOOPP	00110
PUPELL	00071	PUPFAE	00202	ROTATEAEBX	63507
RCTATERADN	63506	ROTATEROBX	63510	RA	63002
RACFFSET	63514	RAOOT	63007	RAOARMODE	63312
RACBXSAN	63503	RAOECOTIME	63531	RAOIOOEC	63541
RADIOMETER	63102	RAOIORA	63540	RAIUS	63006
RADIUSOOT	63011	RANGE	63052	RANGEOUT	70777
RANGEADC	63445	RANGEDOOT	63062	RASCTNSCAN	63504
RMTR	63430	ROXXX	63433	RECORDSIZE	63112
RECAZIM	67000	RECELEV	70000	RECFILE	63212
RECRD	63415	RECROSWTCH	63155	RELEASESW	63156
RFACIOR	00310	RHERE	00114	SAVEOOP	00305
SAVEDRNG	00306	SAZIM	63055	SECELTME	63134
SDC	63005	SECONDS	63140	SELEV	63056
SETB3	00137	SETOOPNEG	00147	SIDERTIME	63012
SINCRIENT	63064	SINAZEL	63066	SKIP	63331
SRA	63004	SRADTIME	63136	STATUS	00326
STR3MOAZ	00216	STR3MOEL	00217	STRAE1	00070
STRAE2	00074	STRAE3	00075	STRAE4	00076
STRMSOOP	00103	STROOP	00141	STRMSAZ	00203
STRNG	00164	STRMSEL	00207	STRMSRNG	00234
SYSOCHREG2	63453	SYNCTIMING	63542	SYSOCHREG1	63452
SYSOCHREG5	63456	SYSOCHREG3	63454	SYSOCHREG4	63455
SYSNAMES	77700	SYSOCHREG6	63457	SYSENTRIES	77600
SYSTAD	63315	SYSTAT1	63313	SYSTAT2	63314
TIMEODOE	63103	TO68CO	00254	TIMECORR	63107
TRUERANGE	63063	TIMEP	63435	TIMEOTOHOL	63520
TWCSECOCP	63017	TRUETIME	63132	TTYSSTATUS	63111
VIZDEC2	63016	VELOFLIGHT	63335	VIZDEC1	63014
WESTFORC	00000	VIZRA1	63013	VIZRA2	63015
WFOCPPLER	00312	WFDRO	63432	WFAO	63450
WFRANGE	00311	WFFREQ	63333	WFINIT	00002
YRTRAN	63327	WFRUN	00027	YEARMONTH	63147
		ZRTRAN	63330		

END CF LISTING

..... WESTFORD JDD*2/1/65 SPURT OUTPUT NO. 212

LABEL	LOC	LABEL	LOC	LABEL	LOC
WESTFORD	00000	WFINIT	00002	MSININT	00023
WFRUN	00027	LOOPTRN	00062	PUPAZ1	00065
STRAE1	00070	PUPEL1	00071	STRAE2	00074
STRAE3	00075	STRAE4	00076	STRAEXTRA	00103
PUPCOPP	00110	RHERE	00114	SETB3	00137
STRDUP	00141	DOPNEG	00143	SETDOPNEG	00147
DCRANGEX	00151	DORANGE	00152	STRNG	00164
PWFAGE	00202	STRMSAZ	00203	STRMSEL	00207
ST13MOAZ	00216	STR3MOEL	00217	DOMSRNGE	00223
STRMSRNG	00234	DOMSDOP	00235	STRMSDOP	00252
IC6BCD	00254	MSRATIO	00304	SAVEDDOP	00305
SAVEDRNG	00306	ANS	00307	RFACTOR	00310
WFFANGE	00311	WFDOPPLER	00312	DOPSIGN	00313
INDXAZEL	00314	FRATIO	00315	ANSMINT	00316
MSINRCW	00317	MSINDATA	00320	STATUS	00326
AS\$S\$1111	00330	AS\$S\$1112	00331	AS\$S\$1113	00332
AS\$S\$1114	00333	AS\$S\$1115	00334	AS\$S\$1116	00335
AS\$S\$1117	00336	AS\$S\$1118	00337	AS\$S\$1119	00340
AS\$S\$111A	00341	ID1CEL COR	63000	ID2CEL COR	63001
RA	63002	DEC	63003	SRA	63004
SCEC	63005	RADIUS	63006	RADOT	63007
DECDOT	63010	RADIUSDOT	63011	SIDERTIME	63012
VIZRA1	63013	VIZDEC1	63014	VIZRA2	63015
VIZDEC2	63016	TWOSECOOP	63017	ID1RAOCUR	63050
ID2RADCCR	63051	RANGE	63052	AZIM	63053
ELEV	63054	SAZIM	63055	SELEV	63056
CRANGE	63057	CAZIM	63060	CELEV	63061
RANGEDOT	63062	TRUERANGE	63063	SINORIENT	63064
COSORIENT	63065	SINAZEL	63066	COSAZEL	63070
ACQAZIM	63071	ACQELEV	63075	FRAMESIZE	63101
RADIOMETER	63102	TIMEMJDE	63103	FIRSTELEV	63104
ASTRORA	63105	ASTRODEC	63106	TIMECORR	63107
KYPRLEVEL	63110	TYSTATUS	63111	RECORDSIZE	63112
CELBODY	63113	IDTIME	63130	ID2TIME	63131
TRUE TIME	63132	CELTIME	63133	SCELTIME	63134
CCONVERTIME	63135	SRAOTIME	63136	HOURLMINUTE	63137
SECONDS	63140	DSECONVS	63141	ACTUALTIME	63142
ESTSHIFTED	63143	GMTSHIFTED	63144	GMTMODU24	63145
BLASTOFF	63146	YEARMONTH	63147	OAY	63150
HOURREG	63151	MINREG	63152	FIRSTTHRU	63153
CUMSECTTG	63154	RECROSSWTH	63155	RELEASESM	63156
ID1RECRD	63210	ID2RECRD	63211	RECFILE	63212
ID1SYSPAR	63310	ID2SYSPAR	63311	RADARMODE	63312
SYSTAT1	63314	SYSTAT2	63314	SYSTATO	63315
DELTATEE	63316	FREQUENCY	63317	LONGITUDE	63320
GEODETLAT	63321	GEODEVLAT	63322	EQUATOR	63323
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MSFREQ	63332	WFFREQ	63333	MAINSWITCH	63334
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NMPERAU	63340	AUPEREQUAT	63341	KMPERNM	63342

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EXPNAME	63350	ID1ENTPNT	63410	ID2ENTPNT	63411
MCPGM	63412	INTER	63413	CDCON	63414
RECRD	63415	ADSCN	63416	AESCN	63417
CORCT	63420	DYDMP	63421	CHCOR	63422
PRLOG	63423	CELCOMPGM	63424	DATANALYZE	63425
INTERCOM	63426	ACQUI	63427	DMTR	63430
CHPAR	63431	WFOR	63432	RDXXX	63433
PLANP	63434	TIMEP	63435	PLDTP	63436
ID1RAD10	63440	ID2RAD10	63441	AZIMADD	63442
ELEVADD	63443	DOPPAD	63444	RANGEADD	63445
INAZIMADD	63446	INELEVADD	63447	WFADD	63450
MILLSTNADD	63451	SYSOMREG1	63452	SYSOMREG2	63453
SYSOMREG3	63454	SYSOMREG4	63455	SYSOMREG5	63456
SYSOMREG6	63457	INTERLOCK SW	63460	PREVIOUS TM	63461
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ELVTNSCAN	63502	RADCRX SCAN	63503	RASCTNSCAN	63504
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ELEVOFFSET	63513	RADFFSET	63514	DECOFFSET	63515
CRSROFFSET	63516	ALNGOFFSET	63517	TIMETOHOLD	63520
PERIODELEV	63521	ARCOFELEV	63522	PERIODAZIM	63523
ARCOFAZIM	63524	PERIODDEC	63525	ARCOFDEC	63526
PERIODRA	63527	ARCOFRA	63530	RADECOTIME	63531
AZELOTIME	63532	RAD10RA	63540	RAD10DEC	63541
SYNCTIMING	63542	ID3RAD10	63776	ID4RAD10	63777
AZIMOUT	64000	ID5RAD10	63776	ID6RAD10	64777
ELEVOUT	65000	ID7RAD10	65776	ID8RAD10	65777
DOPPOUT	66000	ID9RAD10	66776	ID10RAD10	66777
RECAZIM	67000	ID11RAD10	67776	ID12RAD10	67777
RECELEV	70000	ID13RAD10	70775	ID14RAD10	70776
RANGEOUT	70777	MCPFILLER	71000	ID15RAD10	71776
ID16RAD10	71777	INTERAZIM	72000	ID17RAD10	72776
ID18RAD10	72777	INTERELEV	73000	ID19RAD10	73776
ID20RAD10	73777	INTERODPP	74000	ID21RAD10	74776
ID22RAD10	74777	AZIMIN	75000	ID23RAD10	75776
ID24RAD10	75777	ELEVIN	76000	ID25RAD10	76775
ID26RAD10	76776	INTERANGE	76777	ID1SYSENT	77576
ID2SYSENT	77577	SYSENTRIES	77600	ID1SYSNAM	77676
ID2SYSNAM	77677	SYSNAMES	77700		

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13. ABSTRACT A description is given of ten non-major subprograms in the Haystack Pointing System. These programs all operate in the real-time environment, but in a sense are embellishments to the system proper inasmuch as they are by design either utilitarian to system operation or perform minor system functions. The additional system capabilities provided by this set of subprograms include: alteration of memory locations; modification of certain system parameters; constant monitoring of selectable memory locations; pointing of the antenna to any azimuth and elevation or right ascension and declination; outputting of certain planning information "on-line"; strip chart recording; magnetic tape recording; high-speed printer interfacing and Westford/Millstone intersite coupling.			
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